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ABSTRACT

Because of the rapid changes in the world of work, education is hard-pressed to meet society's needs. If education is to meet the needs of the future, it must not merely update, but radically change its model. Because technology changes the workplace so quickly, specific vocational skills are no longer a valid product of vocational education. Instead, vocational education should provide all students with generic skills that are flexible and transferable from one area to another. One state that has been attempting to meet this challenge is Arizona, where partnerships of business, industrial, and educational leaders have been meeting to determine needs and how to meet them. From these partnerships have evolved an emphasis on competency-based education, the provision of career development skills and employability skills, and better articulation between secondary and postsecondary educational institutions. One new program, called Jobs for Arizona Graduates, has successfully prepared high school students for jobs after graduation by helping them gain employability skills and focus on goals. Although Arizona's approach has been successful, it is but a beginning. Across the nation, leadership must emerge and educators must be willing to tackle the difficult issues and plan for the future. The system of education must change; the Nation's future depends on it. (A section of questions and answers is included in this report.) (KC)

State Concerns in the Future Development of Vocational Education

Anne Lindeman

Occasional Paper No. 98

THE NATIONAL CENTER
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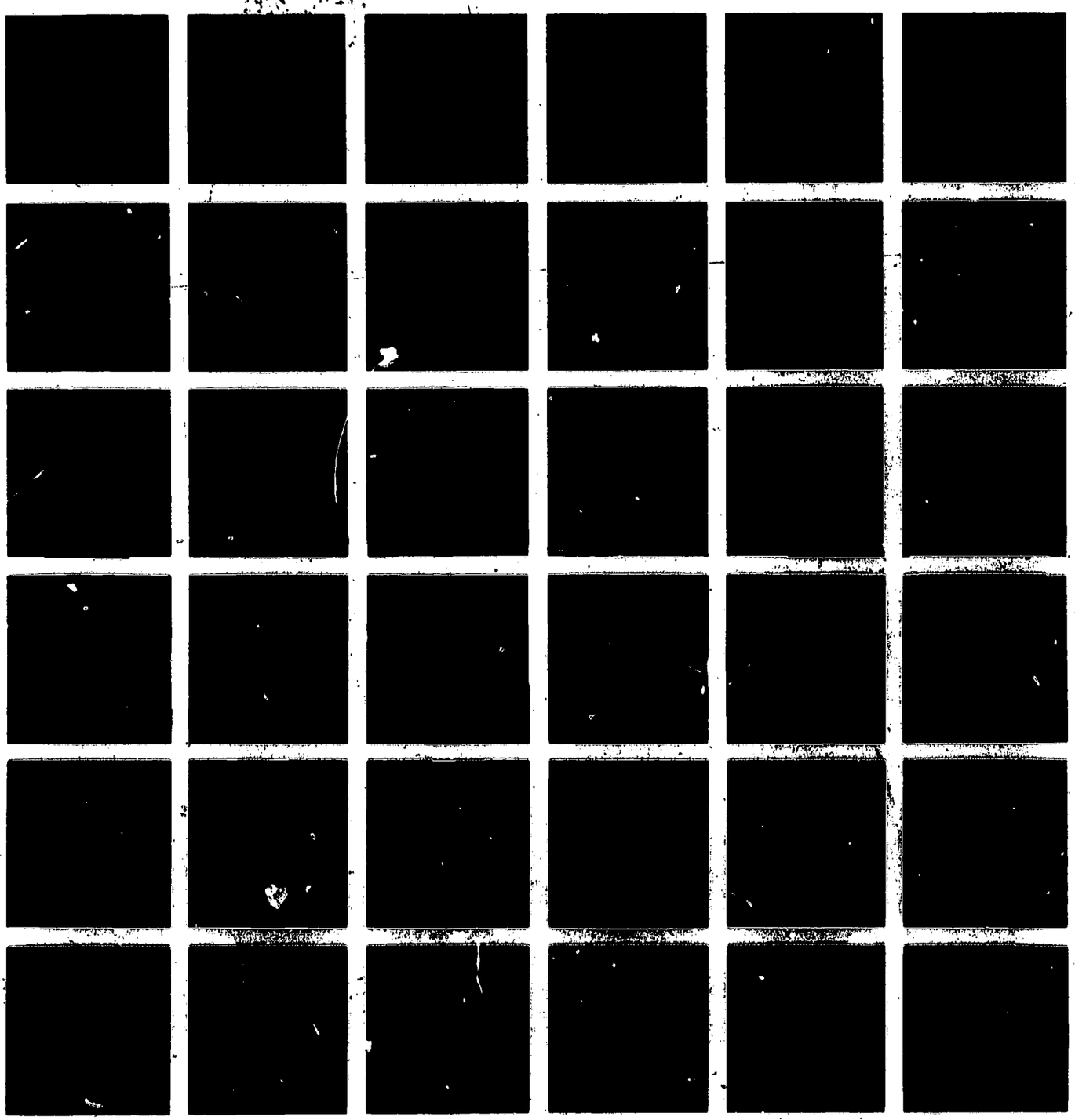

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Occasional Paper No. 98

STATE CONCERNS IN THE FUTURE DEVELOPMENT OF VOCATIONAL EDUCATION

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Arizona State Senator

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
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1984

FOREWORD

We have addressed many varied topics through this seminar series, including subjects such as economic development, special populations, excellence in education, future priorities, and high technology. In this particular session, the focus is on the role and policy structure for vocational education at the state level. Education is the constitutional responsibility of the states. The federal role in Vocational Education in recent decades has been significant, but is it important and valuable to think in terms of the policy structure the needs and goals, and the new dimensions that are confronting vocational educators and policymakers at the state level.

Anne Lindeman's presentation is entitled "State Concerns in the Future Development of Vocational Education." Our presenter is an individual who is widely known nationally, and respected equally in vocationally education circles as well as legislative and policy circles. She is a practicing nurse, and has been a member of the Arizona state legislature for eleven years, currently serving her fourth term in the State Senate. She is in her fifth year as chair of the Senate Education Committee, is the vice chair for the Senate Appropriations Committee, and was named the Legislator of the Year for Vocational Education in Arizona in 1981 and 1982. Anne Lindeman serves as the vice-chair for the Educational Commission of the States, and since the chair is reserved for a governor, you have some sense of the leadership role that she performs in that area. She serves as a member of the Task Force on Education for Economic Growth, and is also a member of the Executive Committee of the National Conference of State Legislatures. Finally, she has served as a member of President Reagan's Advisory Committee on Federalism, was designated the National Republican Legislator of the Year in 1982, and is a board member for the Institute for Educational Leadership.

The Ohio State University and the National Center for Research in Vocational Education are pleased to present Anne Lindeman's address on "State Concerns in the Future Development of Vocational Education."

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

STATE CONCERNS IN THE FUTURE DEVELOPMENT OF VOCATIONAL EDUCATION

Today's topic is one of conversation all over the country. Whenever legislators meet, they discuss it. Whenever the Education Commission of the States meets with educators, legislators, and governors, we discuss it. It is a topic of discussion at every chamber of commerce meeting that I have attended recently. The National Center is in for a rather hectic and exciting several years.

Gary Jones, Deputy Under Secretary, U.S. Department of Education, told me not too long ago that "we have been trying for a couple of years to convince the White House that education is something we ought to be discussing. All of a sudden we're not only bridesmaids, we're the bride; and we're not sure what to do now." While we may disagree with some of the comments that are being made around the country and some of the ideas that are being expressed, it is heartening to see the subject of education as one of high interest in this nation. Vocational educators need to start discussing it also. They can sit back, complaining about and criticizing the problems, or they can do something constructive as a result of the interest that has been developed in the last six months. Is society at risk when it comes to vocational education? I think so right now.

American society is undergoing a set of powerful changes, the outcomes of which will drastically revise the rules by which we live, work, and think. We are said to be restructuring our industrial base, and in some states—Ohio is a perfect example—"smokestack" manufacturing concerns are being replaced by "high-tech" industries. Computers will become as common in suburban American households as toasters. I recently read where a bank, grocery store, and cable company have joined to start an experimental program of purchasing groceries from homes through computers and television sets. Sophisticated systems of communication are linking distant lands and people into an interdependent network, or "global village," as Naisbitt (1982) calls it. Robots are now doing many of the tasks once done by human hands.

The notion that things change is not new; it has always been so. What is remarkable about the changes we are experiencing today is the unprecedented speed with which they are occurring. To illustrate this point, one need only consider the issue of transportation. It took from the beginning of time to perhaps fifty years ago to develop a vehicle that can reach a maximum speed of 100 miles per hour. Today, we have the opportunity to board passenger aircraft that will take us overseas at over 800 miles per hour. This is routine travel. Rockets are capable of taking us into orbit or to other planets at 6.5 miles per second, or 23,400 MPH. Other means of communication tell a similar story. Fifteen years ago, it took one month for a letter to go to Europe. That same letter can be received within seconds today.

These changes in technology will only become more rapid. The important question before us today is not the changes in technology themselves, but their implications for us as a society. While most of us only have direct contact with the technology in the sense that we can purchase personal computers to keep our home accounts and play Pac-Man; and watch the Atlanta Braves from any home or hotel room cable network on the continent, we would be making a grave error in assuming that change will only come to us in the form of new or different consumer products.

Those who chronicle such change have been warning us that our social institutions, particularly education, must prepare to respond or face a siege of legitimacy unlike any seen in the past. While the educational and training community should appropriately be given the task of taking us forward into the information age, serious reservations exist about its capacity, or perhaps its willingness, to do so. When many professional educators speak of "change," possibly what they mean is a kind of "change" that will look very much in structure, style, and content like the educational system of today, that is, "business as usual." Will we boldly step forward into the future with one foot, the other nailed firmly to the floor?

Education is deeply invested in a bureaucracy that, in many ways, has failed to handle the crises of the past. Education, particularly vocational education, is being called upon today to prepare workers who are adequately trained and mentally ready to respond to the changes and challenges of tomorrow. Indeed, if these challenges are even close to being as predicted, a "business-as-usual" approach will rapidly evolve from unsatisfactory and dysfunctional now to disastrous tomorrow. It will guarantee that future workers and today's workers will face not only unemployment but also unemployability.

The "American Dream," our belief in the opportunity for any citizen of our nation to become anything that he or she wishes to be and is willing to work toward, will become a hollow myth for most of our children and grandchildren. We will further dislocate an economy that is just beginning its resurgence after years of neglect. A continued failure to keep up with the demands of the world around us will cost dearly and threaten to destroy the fabric of our society.

David T. Kearnes, president and chief operating officer of Xerox Corporation, has questioned why it hasn't occurred to any of us . . . in government, industry, or academia . . . that we are trying to reindustrialize what is no longer an industrial society. We are talking about putting people back to work in our factories when the factory is being replaced in our economy. The choices made today in the training of today's student will, to a considerable extent, determine the strength of our economy, the credibility of our national defense, and the quality of our lives.

But lest we get carried away with high technology, I would like to refer to a paper by Bud Hodgkinson, a fellow from the Institute of Educational Leadership that relates to future job markets and skills. Because we tend sometimes to get carried away by Naisbitt, Hodgkinson brings us back to earth by listing jobs that are likely to occupy the most people in the future: clerks and secretaries, janitors and sextons, restaurant workers, and health professionals. These are the major jobs in the future in terms of sheer numbers. High technology will consume no more than 9 or 10 percent of the employable work force. So we do not dare get carried away with the nice phrase "high tech" and think that is where the whole world is going to be. Business as usual in education is a crisis as well as a funding paradox.

"Business as Usual" in Educational Crises: The Funding Paradox

In April 1983, the National Commission on Excellence in Education released a report entitled "A Nation At Risk," detailing the malignancy of mediocrity paralyzing today's education. It alleges a serious decline of student achievement on virtually every indicator from 1963-1980, discusses the growth of minority "functional illiteracy," and notes the high cost of remediating basic skill deficiencies. The report concludes with the rather dramatic assertion that, had a foreign power imposed such a condition, "we might well have viewed it as an act of war." I find that latter statement somewhat striking; it seems to suggest that someone did "impose" it. The fact is, to the

extent that the allegations are accurate, we "imposed" it on ourselves as a function of the choices we made. "We" means parents, teachers, policymakers, and funders who have been involved over the years. In any case, the findings of the report itself are probably better discussed in other forums by groups specifically interested in them. Furthermore, educators have heard similar statements before and most certainly will again.

I did, however, find the reaction in some parts of the educational community and the media to be particularly revealing to this report. We had a blue-ribbon panel of educators and business people charge that education was in a severe decline and was going to take the society with it. The question that emerged was not, "How do we correct the problem?" but "Who is going to pay for it?" This reaction is ludicrous, as if all it took to alleviate a crisis of priorities and poor performance was more money into the same bureaucracy that created it.

The report had a tremendous impact when it reached the news media. A headline story for several days, it generated widespread discussion. One of the first people questioned about the report was Secretary of Education Bell. One of the first questions asked was whether the federal government was going to pay for the proposed changes. Consistent with his prior statements, the position of the Reagan administration, and, had the reporters looked, the Republican Platform of 1980—the secretary responded: it was not a federal responsibility, and the administration had kept its commitment to reduce taxes in order to free revenue for this purpose, at the state and local levels, if the localities wished to do so.

The media and the educational establishment had a "field day" with the secretary's comment. The administration could not be sincere about education, they stated, and it must not be concerned about the findings of the commission, because it refused to throw money at the problem or mandate that state and local entities do so.

It can cause considerable confusion when a president actually attempts to implement a party platform, a commitment that President Reagan has consistently kept. It is certainly rare in our memory of past administrations—Republican or Democrat. More central to the point, however, is the question of money and "paying for all this." If a discussion of funding will clear the way for a restructuring of our priorities, it will be useful to consider if only to lay this question to rest.

If the quality of our educational system has fallen markedly between 1963-1980, this has important implications for the "money as cure" argument, because these were the years that funding for education reached unprecedented levels. The 1960s and 1970s focused on a plethora of social ills, all of which were brought to the door of public education for resolution. More and more funds were allocated for the purpose of addressing these problems, resulting in an astronomical growth in public expenditures. From 1963-1980, for example, allocations for public education climbed from $36 billion to $199.8 billion, an increase of 455 percent. It grew on a per capita basis from $559 per year to nearly $2,500, about a 350 percent increase. When I first worked as a legislator, a flat dollar amount per student was $250 in Arizona. We are funding now at approximately $2,300 per student from the state level with additional special funding over and above that amount.

Funding has increased tremendously at the state level in the last fifteen to sixteen years. Today, education consumes a full 12 percent more of our gross national product than it did in FY 1964. Federal outlays alone, according to the U.S. Department of Education, have grown from $673 million in FY 1964 to $12.1 billion in 1982 (Grant and Eiden 1982). Higher education has certainly played its role in this process, increasing its per capita expenditure 203 percent over just a portion of this period (1967-1977), a whopping 77 percent real increase after discounting for inflation (Carnegie Council 1980).

Clearly, society has been generous with education. The point is not that the nation's commitment to education is misplaced. President Reagan was correct when he identified public education as one of our highest priorities. It is the foundation of this country. Rather, the demand for more money as the solution to our present crisis apart from fundamental changes in how we educate is highly suspect based on past experience.

Is the Reagan administration insincere about its commitment to education? I think not. It accurately sees that the "cure" of the past has not worked. Increasing the dosage, therefore, makes poor sense. Money is not going to solve the problem of vocational education in a changing society anymore than it has other problems of other times. In fact, it may exacerbate the problem by deluding us into thinking that something positive is actually happening; after all, our funding is secure. Nothing short of a new direction in the way that we provide vocational training in the context of a new set of priorities will put us on course. And we do not have much time.

How, then, do we begin? A look back to determine where we have been is helpful to gain an understanding of the nature of vocational education. With that we may be able to define where the points of vulnerability are.

Vocational Education in a Changing Society

Historically, vocational education has been assigned the mission of preparing students to enter the world of work, as opposed to continuing their schooling. Its programs and curricula, therefore, tended to reflect a perception of the employment realities of the time.

At the turn of the century, vocational education emphasized agriculture and home economics, appropriate for the rural, farm-based economy of the 1800s. Vocational education has tended to focus on the manual trades and other skill requirements of heavy "smokestack" manufacturing due to the nation's increased industrialization fueled by cheaper and more efficient technology and the tremendous industrial mobilization that was required by two world wars. In addition, vocational education tended to say to the American public that this field was for those who could not succeed in general education.

When we began working on the subject of vocational education in Arizona several years ago, initially the term "vocational education" was dropped from the first draft of the bill. We attempted to use terms such as "career," "career planning," and "career training." You may notice that the armed services never mention the word vocational in their ads on television. Dropping the term was viewed with horror by vocational educators; they were upset and did not understand why the term should be eliminated. My thought was that if we are going to be true to the public, we are really speaking of careers. I did not realize how cherished the term was to vocational educators. In the end, we used the term "vocational education."

In the past thirty years, the battleground has become general education. When Sputnik suddenly emerged on the scene in the 1950s, we responded with a tightly organized core curriculum with a strong math-science-technology emphasis. The 1960s brought a host of social concerns into focus with a variety of modes of analysis, life-styles, and ideologies competing for attention and validation in the public arena. Education responded with a loosened curriculum, open classroom team teaching, varieties of options for students' independent study, and other means of reflecting the activity in the larger society: the "do your own thing" syndrome. In the late 1970s a backlash to the preceding decade occurred: "back to basics" suddenly became the word, with a tightened curriculum and a narrow focus.

Education, then, is a "reaction-oriented" social institution. Policymakers who provide the funding and attempt to set policy are reaction oriented. Unfortunately, we do not have a great deal of long-range planning; we tend to react to the times. Is it any wonder that our reaction then filters down in the educational system? The institution will reflect the social processes of the society in which it resides and, given sufficient time, will do so accurately and appropriately. We talk a lot about the knowledge explosion; and when I talk with my children about things they are learning and the exposure they have today compared to what I had, the differences are phenomenal. In the communications systems, change is going to be even more phenomenal.

Had America's industrial base changed gradually, vocational training in the context of our educational system might have been able to prepare a work force appropriate for today's economy. Technological change, however, did not follow the script. With the development of the transistor and semiconductor, the pace of change and growth has been exponential.

Educators do not have the luxury of time any longer, for they can see the manifestations of this urgency all around. In some fields, textbooks become obsolete before they even go to press. The teachers trained in vocational subjects lose touch with the technology in their area very soon after certification. Most children entering school have used computers, and some are more computer literate than any teacher they will ever have in many school systems. Students today are aware of space flight, have used sophisticated electronics equipment, and may have a greater intuitive sense of the "megatrends" than a large number of the adults with whom they will have contact. Children today are sophisticated, and public education in general, vocational education specifically, cannot change at the rate it currently does and hope to respond accurately to their needs.

How do we meet the needs of a society in which dynamic change is normative when the vehicle that must address that need can only react in terms of its present assumptions? Clearly, a new model is indicated, one in which flexibility, responsiveness, and the willingness to meet the demand are the driving forces of a very different and dynamic educational system.

Escaping the Trap: The Arizona Approach

We in Arizona are attempting to meet the demands created by this rapid change I have been describing. It is a credit to the nation's vocational educators that many states have made dramatic improvements in response to the challenges they have faced, but being most familiar with the situation in Arizona, I will confine my remarks to my own state. This is not to suggest that the way Arizona educators are going about solving their problems is the "right" way, nor are all our efforts appropriate to all other states. The specific needs of each locale are of primary importance in determining the solution. Furthermore, I do not feel Arizona has gone far enough in striving toward meeting its challenges. We have begun, however, the process of rethinking our situation, and I want to describe the exciting potential I believe it has.

Three million people live in the twenty-fifth largest state in the country. People from all over the country make Arizona their home, primarily because of its favorable climate. For this reason, it is a good testing ground of consumer products. But in terms of educating its population, Arizona has some unique features that require attention. First, it is a multicultural, multilingual state in which its two primary urban centers have only recently become manufacturing centers. The electronics and aerospace industries are investing heavily in research and development in the Phoenix and Tucson areas, which are the two urban centers. At present, southern and central Arizona rank third in the nation as a center of "high technology." The balance of the state is primarily rural. With these characteristics in mind, any statewide program must bridge some very wide gaps in language, life-style, and social orientation.

Second, both the old and the new business community have had limited levels of involvement in creating vocational education programs that are training future workers. The problem seemed to be caused by 2 factors, the federal policies and the hesitancy of vocational educators to work with industry.

The problem that sparked the new approach was that Arizona education was lagging behind Arizona industry, and because of the nature of the industry, the gaps were widening. This was inevitable, since many firms were doing state-of-the-art work and had personnel requirements that were not being met. The first goal was to increase communication between business and education on both a statewide and local level, but state educators first had to assure the business community that their commitment to meeting their needs was a strong one. After that, both groups had to develop a structure in which to establish formal and informal linkages between all parties to maintain clear lines of communication. State and local councils were formed to strengthen our educational and American free enterprise systems by intensifying a dynamic partnership between the business/industry and education communities. These groups are active and serious about what they do. Programs, projects, and workshops are initiated for the sharing of problems and perspectives between the various entities. As many barriers as possible are eliminated between the two groups in order to maximize speed, clarity, and effectiveness of communication. This communication has no purpose, however, if it has no impact on programs. Furthermore, even today's rapidly delivered information may have little relevance tomorrow. The partnership had to manifest itself in real life.

One of the products of the 1960s and the trend toward the hodge-podge of programming at the high school level was that students drifted. They managed to graduate but had no recognizable course structure and certainly no goals. Today, they very often have become residents of our correctional institutions or drug rehabilitation programs.

In answer to this type of problem, an early product of the partnership was a program called "Jobs for Arizona Graduates," which provides instruction in transferable skill areas and employability skills for students with no recognizable goals. Basic skills, filling out job applications, job interviews, dependability on the job are all covered under this program. The students are then followed for the first nine months on the job. Some have succeeded. This program has produced employable high school graduates from students who had been directionless and who were unlikely to be employed.

As a part of developing this program, educators began designing competency-based curricula, employability skills charts, and career pathway planning for high schools. Another part of what is going on in Arizona is a result of a legislative act that requires the counties to coordinate so that high school students may more effectively make the transition between high school and the community colleges. No coordinated program integration between secondary and postsecondary education existed. Universities generally, in the past, required certain prerequisites for entry. That practice was given up a few years ago but is now starting to be put back into effect. Vocational education has never had that kind of integrated predisposition to a postsecondary education. It was a "hit or miss" system, or actually a nonsystem.

So now Arizona school personnel at the secondary schools, private technical schools, and community colleges are getting together to determine what prerequisites are required at the high school level that qualify an individual to continue at the postsecondary level for further skill training. Because funding levels are low, educators also want to talk about the improved use of facilities. Creating masses of new facilities is not possible, so the use of existing facilities must be improved. On the whole, all resources must be more efficiently used, including teachers, who

could conceivably be certified at both the high school and community college levels, thus ensuring that the competencies needed at the community college level are taught at the high school level. This last strategy is included in the first draft of the Maricopa County plan.

Arizona legislators have mandated that only two counties implement this plan because, due to a lack of resources, they were the only ones that could afford it. These counties balked at the plan. The other counties that were not mandated were the ones who started working on it very hard. Sometimes suggestion is better than mandate. These counties have come up with the kinds of action they and legislators should take to enhance the vocational programs. They are determining one of the key things that we need to know: what is an entry-level skill for each general occupational area. Although we need to know what these entry-level skills are, the question still remains as to where it is most appropriate to teach them, at the high school or the community college. We have become convinced that some entry-level skills are more appropriately taught at the postsecondary level, and some, at the high school level.

During our initial meetings on these topics, many people testified from industry, chambers of commerce, and so on. One of the local high-technology firm representatives came in and told us of their desperate need for two-year, trained, certified electronic technicians. Our community colleges were not turning out enough such technicians, and they were, for the first time, having to pay for workers with less than a college degree to move to Arizona to fill these positions. They showed us page after page of employment ads that they were running around the country to get these qualified individuals—two-year community college-level graduates.

While Arizona legislators did not dictate anything specific to this problem in legislation that was passed, they made the message clear to the community college system that they needed to expand their programs. Approximately one month after the bill passed, an article in the newspaper stated that the same company was no longer going to be using electronic technicians because they had changed to robotics. It seems that while their production division was testifying to us, their planning division was giving this new story to the newspapers. Business and industry should be involved, but until they coordinate efforts they should not criticize legislators for not doing their jobs. It does take all concerned people working together. Business and industry input alone is not a magic answer, nor is increased education right now. All must recognize our limitations and what changes are needed to get the job done.

While discussing vocational education in Arizona, legislators really began to question seriously what it should really mean at a high school level. *The Paideia Proposal*, written by Mortimer Adler, outlines three main objectives for the public schools: (1) to allow personal growth and self-improvement, (2) development of an individual's role as a citizen, and (3) provision of skills so that graduates have the ability to earn a living. The proposal recommends that everyone receive twelve years of basic schooling common to all work in our society: general, liberal, non-specialized, and nonvocational in the traditional sense. This means generic, broad-based skills.

This same thing was discussed in the Arizona legislature. The mechanics classes in the vocational or general high schools are primarily for weekend mechanics. Yet many students take those courses, and few of them are going to become mechanics, except to fix their own cars. That is the only purpose. The course taught them to use their hands; it taught them to use tools. Does one have to be able to fix a car in order to use tools, and is that appropriate at the high school level just because the kids have cars? The point is that our system needs to broaden its scope at the high school level. A basic underlying function of vocational education should be developed that is appropriate for all students and ought to be woven into the general curriculum in such a way that

all students have the advantage. Along these lines, many developments, including competency-based curricula, employability skill charts, and career pathway planning, have improved the effectiveness of instruction.

The last major issue that must be discussed is the articulation of role and function between the educational entities of the state, from the elementary school through university-level training. Peter Schrag (1979) was correct some years ago when he commented that "higher education has gone mainstream. The old distinctions have vanished. We can no longer determine where higher education ends and the rest of the world begins." While Schrag was lamenting the demise of classical education, his point is no less valid in the context of our discussion. No distinction exists, and it is of distinct importance that we make certain it stays that way. Education is not something that occurs between five and eighteen for vocational students who then go out to work. Education for all citizens is lifelong, and the institutions of learning, including both academic and vocationa, public and private schools, need to reflect that reality. In Arizona, educators have just begun to make education available to all of the citizens according to their needs. In this and all of the areas previously discussed, we are proud of what we are doing. But it is a measure of our commitment that we acknowledge how far we have to go.

Beyond the Current Approach

Arizona has not completed its mission, by any means. While we have made a serious and concrete beginning, additional areas need to be given serious consideration.

More than any single action or program, the basis of Arizona's progress has been our refusal to accepi a vocational education program that appears to provide substance, but does not. We insist that the program actually provide substance to our students. In actualizing that commitment, the degree of autonomy vocational education receives greatly increases, enhancing its flexibility and ability to respond to the challenges of Arizona industry. The perpetuation and expansion of that process should continue, because of its beneficial effect. Advocates of vocational education are beginning to learn how decisions are made at a state and national level, and they are increasing their expertise at gaining the visibility required to marshall public support for new thrusts in their, and the nation's, efforts.

In another respect, the "rules" for vocational education must be different from those for general education, because its product is vastly different. Teacher certification requirements should be revised, and the use of professionals in the various industries should be encouraged to instruct students in skills specific to those fields rather than to continue to use professional educators. The National Center for Research in Vocational Education has supported such efforts and this is another way in which all can and should speed the inclusion of new technologies into our curricula. Furthermore, a longer school day should be instituted for vocational students, with classroom instruction condensed into four hours per day. This would expand the opportunity for direct hands-on experience. It may be valuable to bring business and industry even more directly into education in this regard, perhaps sharing facilities and expertise in a variety of training efforts.

Once one gets beyond the staid thinking of "business as usual," the possibilities open up dramatically. Textbooks become obsolete, but other media can be incorporated into instruction that are easily updated, such as videotape and computer software. As training needs change, so may the arrangements of the various rooms and even buildings used. Modular construction has made it possible to build classrooms that are totally flexible, permitting an update of the facility when a program changes. While the little red school house of yore holds a certain romantic imagery, it will not serve us well in the present or the future. Similarly, neither will its curriculum model.

This call today, for a new technology for the delivery of vocational education, cannot be understood in terms of specific proposals. The National Center for Research in Vocational Education has worked in support of our progress toward its creation in many parts of the country. It should grow and expand its ability to provide the vocational community with a means of communicating vocational education's needs. All can count on the federal government to keep its commitment toward maintaining the visibility of vocational education and training. The real battle, however, and success in our work will come from our local school districts, state departments of education, and local leadership. More than anything else, educators must be willing to make a commitment to tackle the difficult issues and plan for what future problems may occur. We need to seek and elect leaders who share our commitment for the future of this nation and support them in doing the job. New technologies imply new rules of production. A new technology of vocational education means that we will now have to begin to write the rules by which the game will be played.

The Future of Vocational Education

From the time this address was conceived to the time of its delivery, teachers have lost jobs, technologies have changed, and product lines and people have become obsolete. We need to see movement in vocational education and time is of the essence. The German philosopher, Hegel, once said, "Hell is the truth seen too late." I believe "too late" is rapidly approaching.

The system of education will change no matter what we do. Every year state legislative leaders spend a great deal of time on education, and it consumes a great deal of our budget every year. The question is, given that our future depends upon the choices professionals make, do we choose to establish quality in our vocational programs? In their study of "excellence" in American corporations, Peters and Waterman (1982) note that all of the principles that characterize well-run companies deal with what people do, underscored by their commitment to quality. This commitment is far more important than any other single feature of an organization. For our purposes, quality in vocational education means that each of us make a difference in what the vocational program is, and whatever that program is now, our personal business is to dedicate ourselves to overcoming the problems and barriers to providing what our students and their employers need in our school districts, cities, and states. We must approach it just as does the Honda worker who, on his way home, straightens all the wiper blades on every Honda he sees because he can't stand to see a flaw on one of "his" cars. It behooves us not to be able to stand a flaw in vocational education. Our nation depends on it.

QUESTIONS AND ANSWERS

Anne Lindeman

Question: You said that we need to be going in different directions in vocational education. What is specifically needed?

We need to get away from the traditional auto mechanics-type courses that we have been running in high schools. We need to broaden vocational education and the employability skills—the generic broad skills—that everybody needs and can use to operate in today's society. We should broaden the prerequisite skills for the technical fields that are taught in postsecondary programs.

Students need to have prerequisite skill development, whether it be math, reading, or whatever, plus a broad hands-on use of tools—anything that is broader than specific courses such as auto mechanics. That concept is fine for the weekend mechanic, but those courses are not going to produce the kinds of workers we need in the future.

We can do other things at the high school level that will help a broader range of students be ready for postsecondary-level programs. High school level training needs to be integrated with the postsecondary system because that is, in fact, where most of the skill training is going to go on in the future. It is not going to be done at the high school level. Only a small percentage of secondary skill training will be done in conjunction with a community college system in utilizing facilities, the trade schools, or the private technical schools. We are trying to utilize all systems in trading off facilities in use of equipment.

Even at the postsecondary level, we should not get really specific within each broad career field. The changes are so rapid in society today that I don't think we can teach students specific jobs that may not be there when they complete their training. In other words, the workplace may have changed to the point where they are no longer trained for the particular job.

Industry often has to offer specific skill training. I don't think public education, for the most part, and the high-technology area, specifically, can do it. This is possible in some of the other fields, yes, but not in some of the faster-changing fields. Four-year programs in universities typify this problem. You start at the freshman level and by the time you finish, the field has changed totally.

Question: What are your thoughts about having specific training centers in such subject areas as robotics and CAD-CAM located around the state? Or do you think that all schools should get a little slice of the budget to do "their own thing," offering this training in their own way?

Both options fulfill a purpose. The high-technology companies are demanding the creation of these centers. They are saying that if we want them to locate in our areas, then we are going to have to provide the right kind of atmosphere. That is too narrow.

As I said in the beginning of my talk, only 9 to 10 percent of future jobs are going to be in those fields that require technical training. General knowledge of how to use some of the new equipment, or understanding of how it can serve in a given work area, is going to be more important for most people than the ability to operate a specific, complex piece of equipment. Since this is the case, we need to be providing this general knowledge or understanding in the school system.

The centers, themselves, are really an industrial effort on the part of states to attract certain kinds of industry. If your state wants to attract these industries and that is the only way they can get them, then I suppose, for the short-haul, at least, it is a good idea. I would hate to see our educational resources put totally into these centers because they are too small a piece of the pie at the very top and are not going to make great numbers of people employable in the future, at least if you believe the projections. Putting all the resources into these centers would be to shortchange everybody else.

Question: Your suggestions for teaching generic skills at the secondary level remind me in some ways of the career education movement, which advocated teaching the basics of career selection and progression to all individuals as a foundation for their work lives. If we could identify a set of generic skills and even develop a curriculum for them, how would you as a state legislator try to get your local school districts to adopt and implement them?

We are working in this exact area right now. The legislation recently mandated that community colleges and secondary schools in the state's two largest counties determine together what kind of training is necessary at what level—whether it is the high school, community college, or university level.

The difficulty they are encountering is in determining what skills an individual should have to progress to the next level. Community colleges and private technical schools are telling the high schools to send them students who can apply their learning in mathematics, who can read and comprehend well, and who have basic work backgrounds. They are asking for students who already know what a job is all about—how to get one, how to keep it, and so forth. Then they will provide the next level of skill training and send the students on to the next level of work. This isn't necessarily appropriate for everyone. Research supports the notion that a very small percentage of students are full-time vocational education concentrators in high school. The majority are pursuing academic or general curricula. They plan to go on to some type of postsecondary education, and they do not necessarily plan to become involved in the labor market before or during their further education.

In terms of those generic skills, some of the "Jobs for Arizona Graduates" skill development manuals are right on target. They teach what we call employability skills: not specific trade school skills, but the more broad-based skills that all people need on the job. We haven't been teaching those skills in high school. We haven't been teaching them how to operate in today's world.

Typing serves as a good example of what I'm saying. Typing is a good skill for everyone to have. Many people consider it a vocational skill. But whether students are going to use the skill in working as typists, or are going on to college and will type their own term papers, it's still a good skill to have. Must we have a business and office occupations department in our public school before we can teach typing? I think not. Typing should be offered to anyone who wishes to learn the skill.

Question: What is your opinion of merit pay for teachers?

I am heading a joint interim committee that is focusing on the subject of career ladders. The topic has some similarities to the question of merit pay. During the course of our work on this subject, we had our staff prepare a definition sheet because we found we were using a number of terms without knowing their proper meaning. For example, we learned a lesson with the term "entry level" when we were working on vocational education legislation. This term and the term "merit pay" have a variety of meanings, and unless you are specific about your definitions, you can be misunderstood.

In Arizona, the career ladders effort would provide for professional growth within the teaching ranks so that teachers don't have to become administrators in order to gain prestige and salary. If teachers are skilled, I would rather they stay in the classroom. Those teachers who are ambitious as well as skilled we lose when they move on in the only direction that will provide them with an increase in salary. We need something within the teaching profession that will provide the opportunity for professional growth within the system. I would not call that merit pay. I would classify it as a professional growth process instead.

Question: Many people feel that the major obstacle to moving ahead in education is the teachers' unwillingness to change or to teach new things in new ways. What is your opinion on this?

I believe we must all be willing to change and grow. But teachers are not the only ones responsible for the problems of today. Administrators, parents, and policymakers are equally as responsible. My observation is that teachers often receive the brunt of the criticism for today's problems, in fact, they have had an unfair amount of criticism.

Effective schooling research indicates that the principal is the key to organizational change. As far as I am concerned, it's up to the principal to encourage and lead the teachers in teaching new things in new ways. Our one difficulty in this is that no one trains principals to be effective educational leaders in their schools. There are no programs that I know of over one year old that offer such training. I spoke with the dean of education at Arizona State University, and he is not even sure he has anyone on staff who could teach such a course. This gives us a concrete place to start. We could improve our schools' flexibility and regenerate the entire system by teaching the principals to be creative thinkers and effective educational leaders. It would also help if those of us at the policymaking level would stop referring to what it was like when we were in school and holding that up as a model for the schools today. We must look forward, not backward.

Question: You suggested that certain courses might be better after school. You seem to suggest that there should be a longer school day and even a longer school year as the "Excellence" report did. Where do you stand on that and would legislators support it?

The governor of Arizona sent over a bill and asked if I would introduce it. It would increase the school year by five days. I told him that I would introduce his bill but could not guarantee passage. Before I had a chance to put it on the agenda, a message came from his office asking that we not hear the bill. When the teachers saw the bill, they wanted to know if they were going to be paid more. The governor was actually cutting the education funding, so he decided the better part of valor was not to push the bill.

We need to figure out what we are doing with the time now. The education committee of the National Conference of State Legislatures has a little story that runs around periodically about what we are doing with our school day. It is about the student, who, if they fit enough categories,

is never in class because they are disadvantaged, monolingual and not English, physically handicapped, and so on. The only time they hit an actual classroom setting is when they take roll in the morning. I want to know what use we are making of the seat time in the schools today before we start talking about longer days. I feel the same way about the funding. Let's really get a handle on what we are doing with the money now before we increase funding. Let's see if diverting some of it into other areas would help provide a better educational program than just adding more on top.

Question: The *Nation at Risk* report suggests that schools need more of the five basics and says very little about vocational education. In view of your discussion on generic vocational education, I wondered what you advocate that report should say in terms of who should have what kind of vocational education?

Probably the reason that commission didn't get into vocational education was because it was really talking about K-12 and probably came to the conclusion that in today's world, very little specific skill training should be done at the high school level. Assuming that, they set it off to one side and didn't mention it much.

I don't think that there's any question but what we need more and better skill training, but it has to happen at the postsecondary level, and even then it should be generic. People should have a set of skills that are adaptable for a variety of occupations within a career field. I want a broad set of tools for people so that they can adapt, because in the future they are going to have to be adaptable. The skills in the areas of jobs are going to change rapidly enough in many areas that if you are not adaptable, you are going to be unemployed. This is happening to our older work force today.

Question: Would you, therefore, suggest that the sixth basic be some kind of general vocational education for all students?

Yes, that is what I was saying earlier when I said that we needed to get away from auto mechanics and put a broad-based program into the regular curriculum in the sense of teaching vocational skills that are short of specific. They learn to work together. They learn to do some other skills that are not related to autos specifically that eventually, they can use in other areas. We can do this without the expense of an autoshop and use that money more effectively in some broader subjects that cover more students.

Question: In technical education, our philosophies center around an area of developing problem-solving techniques, innovation abilities, as well as creativity areas of research and development. Troubleshooting would be a more basic term. These are the skills that people need to be flexible; they can then go off and work effectively in any environment whether it be allied health or a mechanical field. All these areas are the places that you should start interfacing.

That was what I was trying to reach. The National Assessment of Educational Progress, NAEP, results have indicated that we teach reading very well; we teach basic math very well. Nobody comprehends much; they don't know what to do with "two plus two" once they have figured out that it is four. They do know, however, that "two plus two equals four," and they can read the simple written word. What you are talking about and what I am talking about is the same thing. We have to teach people to use that knowledge and apply it to what they are doing. That is the step we sadly lack in the school system today.

Question: With so little to be optimistic about in the world today, I was cheered by your sense of optimism that, if we discussed education, somehow things would get better. And so you quoted the report of the National Commission on Excellence in Education and all of the editorials that say, "Isn't it wonderful we're talking about education." I don't see any basis for such optimism and let me explain why. Because, of the subject matter now in the schools, those who discuss it are ill-informed; the editorial writers misconceive the nature of the problem, and the National Commission on Excellence trivializes the issues. What makes anyone want to believe that the mere token policy of this country contributes to a far-reaching change?

The only thing I can suggest is that it takes some of you and some of me, and eventually we get something done. If I felt that discouraged and that despondent about the whole system, I'm not sure what I would do. I suppose I would stay on the lake and fish. But I really am not that discouraged about it. I think it is the airing of the issue and the public's attention to it that can have either benefit or detriment depending upon how it's handled.

Question: Your role and my role is that we have a responsibility to find how the issues are stated, to find out what questions they are trying to answer, and to determine what the facts are. You know there are some rudimentary facts. For example, your assertion that all these federally sponsored programs make no difference in education is patently mistaken. Specifically in the field of vocational education, federal dollars make an enormous difference. Specifically in the field of education for the underprivileged, federal dollars make an enormous difference. Now we have to go on an investment policy in order to discuss important crisis, to make certain that the handling of the problem will solve it to imagine for a moment that the solution to all the ills of education lies in two achievements. One is to increase test scores by fifty point; can you imagine it? We can do that by changing the nature of the tests. The second is to introduce merit pay. To define educational problems that are shaped by contact to a culture that has many dimensions to it is more than any of us can handle. We want to follow the commission's recommendations by making the whole thing trivial.

I think you may have picked those thoughts up from the commission report or from statements in the press. I don't think I said federal financial support doesn't make any difference.

What I said was that this country has placed an inordinate priority on education and has funded it at a remarkable degree over the last fifteen years. The problem exists today because we have funded it well. I think everybody would admit that it makes a great deal of difference. Disadvantaged students on the NAEP tests are improving at a much faster rate than the general population.

The question is whether we funded to a level now where we need to take another look at what it is we are funding; whether we are doing the best job we can for the money, before we just simply say more money is the solution. That is a proper approach. We do it with our budgets and everything else all the time.

Question: I want to know what you think about taking vocational education out of the secondary schools? Do you think we will be able to hold dropouts? One of the things we've noticed in our research at the National Center is that we are able to hold some dropouts when they get to the stage where they may take vocational education. But when they get to that stage of selecting a vocational curriculum, we hold less students. And vocational education does make a difference to these students.

I don't want to take vocational education out of the high school. I want to broaden it and put it in everybody's curriculum all the way through. There will always be some students who need and will benefit from specific skill training at the high school level; but I don't think it is or should be the general rule in terms of vocational programs.

That isn't where the emphasis ought to be for vocational education at the high school level. It may be the only way to keep some students in school; but I think for the percentage that take vocational education, the emphasis needs to be on the rest of the student body, too, and we are not providing that kind of emphasis with the current program. We know that some students are going to want to be welders. Maybe when they are twenty-five they will figure out that it isn't what they wanted, but for now, it is. If the schools won't teach them welding, they will quit and find someone who will. Don't dump all of the money into those expensive facilities at the high school level for the very few who really need that to keep them in school. We can find other facilities in the neighborhood in most cases and share those rather than use money to build more of the same facilities for the school.

Question: Getting back to the basic skills in vocational education at the secondary level, are you making an assumption that everybody will be able to go on to postsecondary education or are you making an assumption that those students who do not go on will develop their skills at the secondary level?

I am making an assumption that those skills will provide enough tools for the employer to be able to take these students and put them into the jobs with little extra over and above training. If much more training is necessary, then it is probably a postsecondary training program. But that we provide the tools for those students to go out and, very quickly on the job, learn whatever it is they need to learn.

One of the major messages that we gained from industry as a whole and from our state when we were going through the vocational education program was that we needed to make sure that the students could read and comprehend. Not just read—read and comprehend. They had to be able to apply their mathematic skills, although basic. They had to be able to problem-solve.

If schools can turn students out with those skills at the high school level, then they are ready for industry to train into the specific job that they want them to do. Industry can do that very easily. Now that doesn't take care of the very small employer. But given a student with those skills, the small employer will need to put forth less effort than what they are doing today with those kids. We need some specifics, but we need a lot more general education.

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