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ABSTRACT

Concerns regarding education for a productive role in society are addressed in a 1982 public hearing. Testimony is offered by the public, experts, vocational educators, secondary school managers, community college and university administrators, and employers. Topics include the following: the economic environment and employment trends; changes relating to the increasingly information-oriented society; skills needed by youth in a technological society; the need for new curriculum materials and training and retraining of education personnel; the impact that education has on business and the economy; the view by some employers that school graduates are unprepared for work; schooling that is best suited to high productivity within the military; the views of organized labor on the major weaknesses in the overall educational system; the commitment and responsibilities of business and industry in providing training for employees; banker education; economic education; changes affecting vocational education; the employability of secondary-age youth; programs for high school dropouts; the role of postsecondary institutions and the transition from education to work; education in rural areas; the role of the community college; and cooperative education. (SW)

NATIONAL COMMISSION ON EXCELLENCE IN EDUCATION

PUBLIC HEARING

ON

EDUCATION AND WORK

ST. CAJETAN'S CENTER
AURARIA HIGHER EDUCATION CENTER
9TH AND LAWRENCE STREETS
DENVER, COLORADO

SEPTEMBER 18, 1982

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I N D E X

INDEX (Con't.)

P R O C E E D I N G S

MS. CAMPBELL: Good morning, ladies and gentlemen. We're very happy to welcome you this morning. I'd like to begin by introducing the members and staff of the Commission.

I'm Anne Campbell, the Commissioner of Education in Nebraska. Next to me is Norman Francis, President of Xavier University in New Orleans; Governor Al Quie of Minnesota; Arlie Foster, California; Emeral Crosby, Principal at Northern High School, Detroit, Michigan; and Richard Wallace, Principal of the Lutheran School in Cleveland Heights, Ohio.

We're extremely happy to have all of you here. I would like to introduce the persons who do our work. First, Milton Goldberg, Executive Director of the Commission; Jim Harvey and Haroldie Spriggs, who have done the staff work for this particular hearing; Susan Traiman, and Peter Gerger. Also, I want to introduce Tony Morgan, Assistant to Dr. Gardner, who is President of the University of Utah, and also the Chairman of our Commission.

We are pleased this morning to have as our host the Education Commission of the States and its very fine Executive Director, Robert Andringa.

MR. ANDRINGA: Good morning, Madam Chairman and members of the Commission. We want to welcome you to Denver. In this morning's paper was an article which as mentioned to Governor Quie, showed that our per capita taxation was about

the third lowest in the nation and one of the ways we do that is we don't heat here in Colorado.

You are on a fascinating site and I hope that you have the privilege of learning a little bit more about the Auraria Center for Higher Education. There are three institutions of higher education sharing one campus. This was part of an urban redevelopment project several years ago and I think you would find it fascinating.

Like you, Anne, I need to point fingers for your attention to those who've really done the work in helping the Commission put this day together. Dr. Gloria Frazer and Dr. Shirley McKune will be here later. They did a lot of the background work and then of course, Dr. Forbes is here to present us with some expertise on the hearing subject.

I was reminded just a few minutes ago of a story that might apply to education and work. As all of you know, it's one of the hot topics today in almost every organization in the education community. Many of the leading organizations in business are interested in defining a new partnership between education and work, and hopefully it will be a partnership that reflects more than this little story.

Hopefully, those of you who are new to the city have had a chance to see our mountains this morning. Two men were recently walking thruogh the mountains and came upon an eight foot grizzly bear. One of the men slowly sat on the ground and

unzipped his bag and pulled out his Adidas shoes. Slowly he began to put on his shoes, and the other man looked down and said, "You aren't silly enough to think that you can outrun that grizzly bear, are you?" The man on the ground looked up and said, "No, all I have to do is outrun you."

As you look at the economy and the needs of our national defense and every other need of society, truly we cannot have one sector trying to outlive or outdistance the other. We are in the same boat and we will float or sink, perhaps together more than ever in the past. We look forward to this day as a contribution to the dialogue that is going on across the country on how education and work can be closer partners. I would just close with one observation that's easy to make if you're working for an organization like the Education Commission of the States. That is, we really don't have to come to a conclusion or an idea or a plan or a policy that fits the whole nation. We are a beautifully diverse country. We have at least fifty major laboratories that can experiment and implement a range of ideas. At the local level, we also have 16,000 school districts that if given the authority, opportunity and vision by others in society, can be laboratories of experimentation. I would hope that the Council does not feel an obligation to give us and the rest of the country the answer, but a whole variety of answers that we might try and learn from one another's experience.

We hope you have a great day here and that you will ask us to be helpful in any way we can to facilitate the hearing.

MS. CAMPBELL: Thank you very much, Bob. We are very appreciative of the work of the Education Commission of the States in planning for this hearing. We will accept the warmth of your words and hope they keep our toes warm.

In particular, Bob, I think you should know that the staff of this Commission has nothing but the highest praise for the outstanding work of Gloria Frazier of your staff in preparing not only for today's hearing but also for the site visits we will be making tomorrow and the meeing with Denver business leaders which is scheduled for this evening. I also want to express our gratitude to the Auraria Higher Education Center for the use of this historic hall as a site in which to hold the hearing. Indeed, Denver and its educational, business and civic leaders have been wonderful hosts to the National Commission on Excellence in Education and extremely generous with their time, talents and resources.

By way of introduction I should tell you that the National Commission on Excellence in Education was created by Secretary of Education, Terrel H. Bell, in August of 1981. Soliciting the support of all who care about our future, the Secretary noted that he was establishing the Commission based upon his responsibility to provide leadership, constructive criticism, and effective assistance to schools and universities.

I count it a privilege to serve on this distinguished body which is chaired by David Gardner, president of the University of Utah, with Yvonne Larsen, the past president of the San Diego Board of Education serving as vice-chairman.

I will not enumerate all of the charges contained in the Commission's official charter, but will simply note that the Commission is required to conduct a comprehensive and thorough examination of the quality of American education in schools, colleges and universities and to make a report to the Secretary and to the American public by March of 1983. We are collecting an enormous amount of information in preparation for the issuance of this report, principally through two mechanisms; individual papers commissioned from scholars familiar with issues in contemporary education, and hearings such as the one we are conducting today.

Today's hearing is the fifth of six which the Commission has scheduled across the country. The others include topics such as mathematics, science and technology; the condition of teaching; college admissions; education for the gifted and talented; and language, literacy and foreign language instruction. We will be focusing our attention today on the relationship between education and work.

We are pleased to have with us Vernon Broussard of the University of Southern California and Gladys Eddy of Colorado State University at Fort Collins, members of the National

Advisory Council for Vocational Education. We're pleased to have you.

I want to stress that education's function is not solely one of developing mechanics, assembly line workers, farmhands, technicians, and entry level managerial and sales help. Education is also a process designed to develop the individual's critical sense, appreciation of history and culture, knowledge of government, and sensitivity to others. Having said that, however, I must also stress that in our society the ability to participate productively in the economy is an important part of living a satisfying life. Moreover, our society expects in return for its investment in education that the products of the educational system will be able to participate meaningfully in our economy. Many of us are firmly committed to the notion that education is essential to the well-being of both the individual and the nation. Nevertheless, there are disturbing indications of problems in the relationship between education and the world of work. Business men and women, as well as recruiters for the Armed Services complain about the quality of high school graduates who come to them seeking employment. Dropout rates in high school continue to be substantial, about 23 percent nationally.

Unemployment among young Americans is frequently twice the national average and can run as high as 45 percent among the poor minority and urban youth. Increasingly, we hear of

college graduates unable to find employment or forces to take virtually any job they can find. It is not clear that the kind of vocational and technical training available at the secondary and post-secondary education level is adequate to the kinds of increasingly specialized job opportunities available in the work place, which is increasingly automated and dominated by technology. Problems such as these concern all of us for a number of reasons, but perhaps they can be summed up in one sentence. Statistics on unemployment, under-employment and lost productivity represent not only a financial anguish and personal pain for those affected, they also represent lost productivity and economic stagnation in the society which tolerates it. They are, in other words, a disaster both for the individuals and the nation and as we shall hear today, unless we begin to focus upon these issues, they are likely to get worse tomorrow.

We are on the threshold of, if not already into, an information and technological explosion which will profoundly affect the way Americans live, eat, shop, bank, work and use their leisure time. Experts estimate that the implications of new technology in such areas as microcomputers, telecommunications and information processing will affect virtually everyone, young and old, rural and urban, male and female, working and retired. These technologies will affect our domestic and international life, our economic and physical security, and surely they will affect us in that very important area of every

adult's life, the work place, whether we are clerks, bank managers, farmers or haberdashers, teachers or executives. Those of us involved in education must think about our responsibilities to the present generation as we try our best to prepare them for this new world.

Hence, the theme of our hearing today, Education for a Productive Role in a Productive Society. We will be hearing about these issues from a wide variety of people, including experts who have thought about the relationship between education and the changing work place, employers from a variety of backgrounds who can describe their perceptions of the products of the education system and what they need, vocational educators, secondary school managers, experts on work with high school dropouts, and community college and university administrators.

Finally, we have reserved nearly two hours at the end of this hearing so that the members of the public can give us the benefit of their insight into this issue, or if they prefer, talk about the general topic of improving the quality of education. We will hear from witnesses on topics including: Education in the Changing Work Place, Work Place Needs and Training Programs, Employability of Secondary Age Youth, and the role of Post-secondary Institutions.

We have two substitutes on our program today. In the 9:30 a.m. session, Work Place Needs and the Training Programs, Martha Brownlee will represent Bill Maloy, the Deputy Chief of

Naval Education and Training for Research and Development. In the 2:45 p.m. session, Michael Dyrenfurth from the University of Missouri will be replaced by Dr. Robert Stewart, who is also his colleague at the University of Missouri.

Members of the general public in the audience are encouraged to testify at the end of the day. Any members of the audience wishing to testify during that period should go to the registration desk during the break in the morning and provide the Commission staff with their names.

We have, at our first session on Education and the Changing Work Place, Roy Forbes, Associate Executive Director of Programs of the Education Commission of the States and a former Director of the National Assessment of Educational Progress; and Dr. Daniel Saks, Visiting Scholar from the Brookings Institution and a former Director of the National Commission on Employment Policy.

I'm sure that both of you and the other witnesses know that we have a long list of witnesses to hear from during the course of the day. I must ask that you summarize your statements. Hopefully you can take about 12 minutes and then we will have time for questions and discussion. As an aid for keeping all of us on task, there is an electronic device which will emit a warning when ten minutes have expired, and I hope each of you then can conclude your remarks shortly after the warning.

Dr. Saks, we're pleased to have you begin.

DR. SAKS: Thank you very much Madam Chariman, and members of the Commission. I appreciate the opportunity to talk with this important group today. I must say that when I was first contacted by the staff of the National Commission on Excellence, I was afraid I was being singled out as a living example. I was relieved to find out that I am just supposed to talk about excellence and that's what I will try to do.

I have an enormous assignment for 12 minutes. I've been asked to review our experiences with employment and training programs over the last generation and to set the stage for your discussion of Education in the Changing Work Place in the '80s. It's a rather large topic and I'm only going to try to cover a few points. I have made two review articles that I have written with Ralph Smith when I was Director of the National Commission for Employment Policy available to all of you and I will also try to answer some questions.

I have also brought along some statistical handouts and perhaps I could pass these out. I'm not sure that I will really have the time to go through them in any detail, but it does give you some statistics and often one doesn't believe testimony unless it's backed up by statistics, however irrelevant they may be. I would like to think some of these are relevant.

When we think about excellence in education, we tend to focus on outcomes for the upper tail of the distribution of students in schools. The evidence about that upper tail is that

the supply, for instance, of engineers and physicists does respond and respond rather well to market signals about the earnings of those professions. So long as we allow wages to adjust for their college teachers so that such technicians can find training and as long as we provide the kind of financing required by those who don't have large family resources, their training will be accomplished with minimal problem.

What I want to do here is focus on the question of excellence for the average and lower achieving teenagers. We ought to recognize at the beginning that we have a terrible dilemma here: a dilemma between having an education system in which we don't make decisions very early about what a youngster is going to do in life (in other words, a society in which we'd like to think that there is equal opportunity and considerable mobility) and a system with rigid tracking into special programs designed for people who are not going on to college. There is a potential equity cost to putting into place even excellent special programs for low achieving students.

Now, I might say that the Europeans may have done a better job in this; at least they claim to have. One can always see citations to the German system, for example, where there is an extensive apprenticeship program designed to perform exactly this role for the lower part of the distribution of achievers in schools. There may be some reason for us to be moving towards a system like that, but I would like to at least

at the outset caution you that there is a potential cost involved in doing this kind of thing.

The way we tend to accomplish this group's education now is to provide general education in the schools. Then perhaps the best vocational training in this country is done by employers who finish training the students who have the general, basic skills in literacy and numeracy (if one can use such a word). Our system generates much youth unemployment, but it works pretty well.

What I want to do is briefly discuss what I would characterize as the economic environment of the '80s, the environment into which these students are going to be going over the next decade. These are things that I think are well known to you but we ought to review them anyway.

One thing that gets attention is the fact that the growth of the labor force in the '80s is going to be about one half of what it was in the '70s. The great accomplishment of the '70s was moving so many workers into the work force and absorbing that baby-boom generation. Now, the fact that this rate of growth is going to be half doesn't mean that we're necessarily going to be facing labor shortages, although it may mean that firms will not be able to get entry level young workers quite so easily and they may have to devote more resources and more thought to retraining middle-aged and older workers. I might also point out that this is also not likely to solve the real

youth unemployment problem and I'll come back to that in a minute.

Another thing that gets a lot of attention is the rate of technological change in the country. I would point out a few aspects of such change that are often ignored. First, the rate of technological change depends entirely on how much we invest. If capital investment is very low in this country (as it has been recently), then we don't have to worry too much about technological change. The fact that there exist robots that can do various kinds of jobs means nothing if no investment is made in those kinds of devices.

Second, technological change tends to compress the distribution of skills. One of the most important characteristics of the newest technology is that you can eliminate not only low-skilled workers (that's been the story of the industrial revolution), but in new kinds of technologies replace high-skilled workers too, workers who have to make decisions and read and compute. I mention as an example the use of pictures on the cash registers in McDonald's. If you only have to find the picture, you don't even have to know how to read, much less do whatever arithmetic is involved. I think that's a classic example of modern technology.

One of the most important things about new technology is that computer-aided design and manufacturing offers the hope of being able to have much shorter production runs in our

society. We don't need mass-produced products. We can have products which are more tailored to individual needs meaning that increasing numbers or workers will need to be involved in the design of products that are specific to specific purposes. That is a skill that I'm not sure we know how to teach in schools, but it is probably going to be increasingly a skill that we are going to need.

The third point about technological change is that one can read the literature, and I think it tends to be fairly hysterical, and get the sense that in ten years we're not going to need anyone who has relatively low skills. It might be instructive for me to read you a list of the top job-generating occupations projected by the Bureau of Labor Statistics for 1990. These projections tend to be about 80 percent right, which isn't all that bad. The occupations that will account for about half of the projected 16 million job growth in the next decade are: janitors and sextons (that's the biggest one), nurses aides and orderlies; sales clerks; cashiers; waiters/waitresses; general clerks in the office; professional nurses (that's really the first one that requires some highly specialized training); food preparation and service workers for fast food restaurants; secretaries; truck drivers; kitchen helpers; elementary school teachers; typists; accountants and auditors; helpers in trades, blue collar worker supervisors; bookkeepers; licensed practical nurses; guards and doorkeepers; and automobile mechanics. Now,

this is not exactly a list of occupations that requires long years of specialized training before a person can enter most of them. All but a few require relatively short periods of training.

My last point about technology is about robots because they are what many people like to talk about the most. It is possible that we could design our manufacturing so that robots eliminate as many as a third of manufacturing blue collar jobs by the turn of the century. But the thing that's important to keep in mind is that these robots are expensive. General Motors, a leader in industrial application of robots, plans to have 14,000 robots doing mostly the unpleasant painting and welding jobs by 1990. These may replace as many as 20,000 workers, less than 3 percent of the whole GM work force. This is trivial compared to the affects of foreign exchange rates, wages, product quality, and high interest rates.

Before turning away from discussing the economic environment, it is necessary to mention international competition. Assuming that we don't let protectionism become a major policy in this country, international competition will force more and more attention to good training and good capital investment. Competition of the right sort can provide a powerful incentive for excellence.

I wanted to focus my remarks today on the economic environment rather than on the question of what employment and

training programs work today and which groups are in trouble because I have provided you with an article, "Is There Something Wrong with Labor Markets that a Federal Employment and Training System Could Fix?" If I could, I would like to take maybe two or three minutes to review what is in that paper and the handout so at least you know what to look for.

The first thing to keep in mind is that there are three indentifiable groups that have been the focus of employment and training programs: disadvantaged youth; disadvantaged adults; and dislocated workers.

During the 1970s, increasingly the focus has been on disadvantaged youth. If you look at the handout, page one, you will observe a very important point, and that is there is no general youth unemployment problem. What I have here are the unemployment rates by different age groups and what you notice (let's take the left-hand curve, which is for men) is that for 16 and 17 year olds who are black in 1978, the unemployment rate was 40 percent; for whites, it was somewhere below 20 percent. As these groups age, their unemployment rates come down. We expect high unemployment of young people. They're looking for jobs. They're breaking into the labor market and, indeed, that's one of the processes by which they get into the labor market. You will notice these curves shifted upwards between '69 and '78. This is partially due to the baby boom generation entering the labor force and mainly to slack labor markets.

You'll notice that the increase in unemployment in the '70s was not what's really important. What's especially important is that the unemployment rates for blacks are so much more than they are for whites. My interpretation of this and other evidence is that there is no general youth unemployment problem; there is a serious unemployment problem for blacks and other minorities in this country, for the children of poor people, for dropouts, for special categories. It's a highly concentrated problem and what we know is that, for example, three-quarters of the unemployment experienced by youth in 1977 was incurred by the 8 percent of the labor force that was unemployed 15 weeks or longer. In other words, it's a highly concentrated group that is experiencing very long-term unemployment.

The next two tables show unemployment rates and employment population ratios for different groups over time. The thing that I would especially point out to you is the especially high unemployment of in-school youth. You'll notice, for example, that for black males in 1978, in school, in central cities, the unemployment rate was 62 percent. Now, whether you want to regard that as an overwhelmingly serious problem or not, I don't know. You may say, "Well, they're doing something." On the other hand, it is important to notice despite talk about how disconnected schools have gotten from work, that the employment population ratio, for example, for white males in school is over one third. The young group that seems to have suffered

INCREASES IN TECHNICAL TRAINING
(MANWEEKS)

	1950s	1960s	1970s	1980s
SURFACE				
SONAR TECHNICIAN	63	504	718	827
DATA SYSTEMS TECHNICIAN	0	0	500	622
MACHINERY/ELECTRONICS/ WEAPONS TECHNICIANS	810	3367	4671	6534
AIR				
TOTAL MAINTENANCE PERSONNEL	573	785	1050	1140
SUBSURFACE				
TOTAL TECHNICAL PERSONNEL	1675	4300	6400	16846

EXAMPLES OF INCREASES IN TECHNICAL TRAINING

SHIPS

COURSE	1960 SUMNER	1975 (DD 963)	1982 (FFG-7)
SONAR TECHNICIAN (Manweeks)	63	718	827
DATA SYSTEMS TECHNICIAN (Manweeks)	0	500	622
MACHINERY/ELECTRONICS/WEAPONS TECHNICIANS (15 Ratings) (Manweeks)	810	4671	6534

AVIATION

Type Aircraft	Manweeks
S-2	286
S-3	606
F-4J	785
F-14	1140

SUBMARINE

Class	Total Manweeks
SS 563 (Diesel)	3015
SSBN 616/640 (FBM)	8520

special hardship was out of school black, 20 to 24 year-old males. Their employment rates have declined substantially.

The next table gives you some idea of the differences in earnings between students on the basis of how much vocational training they've had. And here again, I think one of the issues that we have to ask about is what kinds of programs contribute to long-term earnings gains of students. I think the depressing news, and it goes along with what was suggested at the beginning, the depressing news is that vocational education in this country basically produces very temporary earnings gains for women who take clerical training and men who take industrial arts and these gains tend to fade away within five years. The vocational education system, I think, is an area which seriously needs some improvement.

I apologize for going so quickly, but I realize that you have a lot of other people to hear from and I'd be glad to answer any questions.

MS. CAMPBELL: Thank you very much. Dr. Forbes?

DR. FORBES: Thank you, Dr. Campbell and members of the Commission. It's a privilege to be able to testify before you today. I will be summarizing my remarks which are contained in a larger paper referred to as "The Information Society: Are High School Graduates Ready?" That paper is currently in production so I'll probably be getting it to your staff next week.

As Anne mentioned in her opening remarks, we are in the period of transition, transition that's taking us from a predominantly industrial society to what we refer to as an information society or a society of a high-technology economy. No one questions that the transition's occurring. Some people claim it's already happened; others say it's currently happening. The speed of the transition will depend upon many factors: political conditions in the world, the economy, the ability of the educational system to respond to the challenges that's both public and private education's ability to respond to that challenge. All of these things will contribute to how fast we do finish this transition.

We're entering a period where information is going to be the most important raw product, not the raw products of the industrial society that we've known. This doesn't mean that some of us aren't going to continue to work in agricultural enterprises or that many will not be involved in an industrial setting, but what it does mean is that most people are going to be involved in services, and those jobs are going to require their dealing with information.

Dan mentioned the Department of Labor statistics which project the fastest growing occupations. There's another list which projects those occupations which are going to contribute or have the most growth: data processing machine mechanics, paralegal personnel, computer systems analysts, computer

operators, office machine and cash register service personnel, computer program engineers; the list goes on. Those jobs will require a different set of skills. The list which Dan mentioned, which will account for about 50 percent of the new jobs that will be formed in the next decade, is an interesting list because as the DOL updates their estimates, some of them change in order. I believe the latest now has secretaries at the top, and any of us who have been hiring secretaries lately know that we look for someone who has word processing skills. We don't look for the individual who has just normal typing and filing skills.

DOL does do a good job, but when I look down their list and I see contained in that list "bookkeeper, hand", and I realize the impact that the microcomputer is having on small business, I have to scartch my head and wonder just a little bit about some of the assumptions that went into that particular list.

What are the skills that young people are going to need as they enter this economy which is so dependent on technology? Evaluation and analytical skills, critical thinking, problem-solving strategies, including mathematical problem solving, organization and reference-type skills, the ability to be able to take information and perform synthesis on it, application skills, creativity, decision making given incomplete information, and communication skills to cover a variety of

methods. Those are the skills that we're talking about when we say what the skills are that are going to be required of young people as they enter into the labor market of the future. How well are we providng those skills today?

The National Assessment measures academic skills and attitudes of the nation's 9-, 13-, and 17-year olds. We take a "snapshot" of what a sample of students can do across the country in, say, reading or mathematics. Five years later or so we'll take another snapshot and that way we can compare how one group performed against the other group. What we've been seeing during the '70s is that we've been making massive improvements in the more basic skills, especially among those students who historically performed very poorly. Title I and other compensatory education programs and the efforts of the education community have had an impact on helping historically lower-performing students to do a better job. So we're picking that type of information up, but we also pick up some very negative information on the other end.

If we start looking at the items that measure the type of skills that were listed, the higher-order skills, then we have declines. Seventeen-year olds today cannot infer from what they read as well as they could at the beginning of the '70s. Seventeen-year olds of today cannot solve mathematical word problems which require more than one step as well as they could at the beginning of the '70s. Seventeen-year olds of today

cannot write a persuasive statement; not as many of them can do that today as they could in the beginning of the '70s.

Then we talk about percentages. In the writing exercise where we ask students to write a persuasive statement, 15 percent of the 17-year olds today can write an adequate or a competent persuasive statement. That's down from 21 percent at the beginning of the '70s. When we look at the mathematical word problems, the ones which require them to take several steps in order to come up with the solution, about 35 percent of the 17-year olds today can perform those types of problems. When we ask questions that measure the student's ability to infer from what they've read, about 62 percent of the 17-year olds can respond successfully to those types of questions as long as they are multiple choice-type questions. If you throw a ringer in and ask them to respond in a way which requires them to write something (a short answer or several sentences or a short paragraph) the number that can adequately respond to that type of item drops off rather dramatically, down into the 30 percent range. So when we start matching the skills that are going to be needed as the students enter this information society with the performance that they have on their skills today, our estimate is that somewhere between 38 percent and 85 percent of the 17-year olds today have a deficiency in skills, depending on the particular skill which we're talking about. It's a tremendous challenge which we're facing.

The way in which we developed that list of skills, by the way, was not a group of educators sitting around and armchairing what was going to happen in the future. We did a little bit of that, but then we asked people from high-technology businesses here in the Denver area, front-range Colorado, as well as from all across the United States, to come and sit down with us and to go over the types of skills that they see are going to be essential for entry level in the high-technology area. We're talking the high school graduate going into an entry level job, not college graduates.

The first hour and a half of any one of those conversations always dealt with attitudes. That's always the first thing that's on the minds of the business community. They're saying, "If you will send us people with the correct attitudes, those attitudes would be: I'll show up to work every day; I'll show up to work on time, I have interpersonal relationship-type skills where I can deal with the other people that I'm going to have to be working with." So, they say, "First of all, send us the people with the correct attitudes." And then as we would go through the academic-type skills, our suspicions of the types of skills that were going to be required were confirmed. We made some adjustments as we went through this process, but at the end of the process their list was essentially the one which I referred to earlier.

The problem that education or the education community

is going to be faced with in meeting or responding to this challenge of doing a better job of providing students with these necessary skills are numerous. I have three that I would like to mention in particular. The first is that we're going to have to develop new curriculum materials. During the '70s and the last part of the '60s, dollars were available to develop new methods for helping historically lower-performing students. We took those monies, had some false starts, but we came through and we developed some materials that could be used to instruct students, and it's paid off. As I indicated, those scores have gone up. We're going to have to go through the same process because today we do not have all the curriculum materials in place to teach the types of skills which I have mentioned. So curriculum development is right at the top of the list.

I think of "new math" and the experience we had with that. I personally believe we fell flat on our faces because we did not do the necessary training and retraining of education personnel to implement that type of program. So, regardless of how many dollars or the effort that we put into curriculum material development, if we don't make sure that the established teachers we retrain and train the new teachers to be able to use those materials, to be able to instruct students in this set of skills, then we'll fail. So I put the training and retraining of education personnel right up at the top, also. And I don't mean just teachers; administrators, principals who have to be the

instructional leaders in schools are going to have to be also trained or retrained, whichever the case may be.

Third, we're going to have to take a look at adjusting our instructional delivery systems: the length of the school day, the length of the school year, graded and ungraded programs are just a few that we're going to have to take a very hard look at.

Those are three things we're going to face.

Technology, which you might say created the problem or created the challenge, can also help us solve the problem. It can help us respond to the challenge. So I think the correct use of technology in our public and private schools is a must if we're going to be successful in responding to this latest challenge.

The history of education is just full of education's ability to respond successfully to challenges. I think we'll be able to, once again, respond successfully to this challenge. It's going to require a new partnership, though, and that partnership is going to be one that has to be formed between those of us in education and those of you who are in the world of work. It has to be an equal partnership. We can't let the world of work dictate everything that we're going to do in education, but education has got to be very responsive to the needs of the business and industrial community in this country. Together we're going to be able to respond to the challenge. I

have all kinds of confidence. Thank you.

MS. CAMPBELL: Thank you very much, Roy. Before I ask the panel for questions. I would like to introduce Charles Heatherly, who is the Deputy Undersecretary for Management of the Department of Education. Would you please stand? We're delighted to have you here.

Are there questions from the panel?

MR. CROSBY: I do have a couple of questions.

MS. CAMPBELL: Emeral Crosby.

MR. CROSBY: Dr. Forbes, I was listening to the comparisons you were making on the 13 and 17-year olds. You also made some comparisons with the 17-year olds from ten years ago. I'm just wondering, do you think that we're asking unfair questions of the ones who are 17 now when we've stopped teaching them? We have taught them multiple choices and now we are asking them a different question, and as you say, we need to develop a new curriculum. Do we need to develop a new curriculum or do we need to go back to another curriculum if that's what we are using as a measurement for our judgment. Am I coming through on that?

DR. FORBES: Certainly, certainly. We always have a problem when we're testing: are we testing what is actually going on in schools or what ought to be going on in schools? We talk about the "isness" and "oughtness." That's the jargon that we use. We believe that we do a very good job in the

National Assessment Program of testing or assessing a lot of "isness." But obviously when I gave you statistics that say only 15 percent of the 17-year olds can write a persuasive statement, what I left out was that we also asked some questions of 17-year olds about how many written assignments they were given or the way in which writing instructions has been provided to them. It ends up that only about 7 percent of the 17-year olds are being given instruction in writing in a way which most writing curriculum people would say is necessary in order for students to learn how to write well. So, if we're only really training 7 percent, well, it may be very good news that 15 percent can respond. And that's where you get in that "isness" and "oughtness." Obviously, we are not teaching writing in school, so when I gave statistics that say students do not do too well in it, then it's because they haven't been given the opportunity to learn. It's not that they've been given the opportunity to learn and they didn't do very well.

The basic are necessary, literal comprehension in reading, mathematical computation-type skills or writing mecahnical type skills. All of those things are very necessary as building blocks in order for people to develop this other set of skills which I have mentioned. I think the curriculum of today and the curriculum of past years have probably done a better job of aiming at the more basic skills and we haven't really focused in on those higher-order skills. I doubt if

there are very many school systems in this country that try to teach students how to solve problems with incomplete information. My background is mathematics. I know we do not do a very good job in teaching students how to estimate in mathematics. That's something relatively new. It's only within the last five years or so that we started doing things there. So I really believe that it's new curriculum that we're going to have to focus on, at the same time not forgetting the basics, the things which we've learned to do well.

MS. CAMPBELL: Dr. Saks?

DR. SAKS: Yes. If I could just comment. I'm glad that Roy got a chance to go through the assessment results because I think the message that comes from the Department of Labor's employment and training programs is that it is expensive to fix these problems downstream (something I call the catalytic converter mentality); in other words, if you let this develop through the junior high schools and then the high schools, and then you try to run programs at the end to undo these failures, it turns out that the only programs that have substantial long run benefits are extremely expensive. Job Corps is the best example. It costs over $12,000 per student and even though those expenditures pay off, you're talking about a very expensive remediation at the end versus trying to get it done in the schools. I guess that would be the basis of the partnership as far as I'm concerned. It's not so much that schools have to do

the job of preparing the students so that they can answer these questions that are being asked on the test and that are measures of general functional skills. Then businesses will do their job of specific vocational training. It is cooperation through Division of Labor.

MR. FRANCIS: Yes. That was the point I was going to ask of both of you. I was going to ask Dr. Saks to perhaps push it a little further, particularly with regard to your opening remarks about excellence for the average or the lower achiever. I think you may be getting at that now because let me tell you what I'm hearing. It's obvious from what we've heard over the many hearings that we have held, we're talking about both short and long-range solutions, if you will, to the problems that we face. But, what seems to continue to come through is that though we need those higher skills that you mentioned, Dr. Forbes, the kind of an education that is basic, that includes the creativity, thinking and analyzing, the like, is still perhaps the one that we had best bet our money on because I doubt very seriously if the institutions that we're talking about are going to be able to give the specialized, if you will, vocational skill training that would be required by some of the new jobs.

I assume you, and I don't want to make a statement, I'm assuming I'm hearing what you're saying in the sense that when you talk about a new curriculum you're not really talking about a new curriculum necessarily. Maybe you're talking about a

curriculum that requires certain things that we may not be requiring--nothing new under the sun. I guess maybe that's what I'm trying to say to you. How much of the new are we talking about or are we really saying that there are a number of things we ought to be doing that we haven't been doing in the past that those comparisons that you've made are showing up, showing the differences? Is it that new or is it that we just haven't been doing some things that we used to do?

MR. FOSTER: Will you be giving us some of your solutions in this report we'll be getting next week?

DR. FORBES: Yes.

MS. CAMPBELL: I might have time for just one more question.

DR. FORBES: I'll do it really briefly. Ralph Tyler reminds me every so often that you've never seen an educational museum and there's a good reason for it. Because there is nothing new. We just cycle back through. So I wasn't talking about a completely new curriculum, but just asking students to write, providing writing instruction, asking students to solve problems where there's not complete information. So I think it's doing more. One of my points was we've got to look at the way in which we are doing things.

MR. FRANCIS: The only reason why I pressed it is because with a commission like this where we are heard talking about new curriculum we seem to send out signals to all the

people you mentioned, Bob, well, we've got to do something new. Now, let's see if we can go to the drawing board to get some newfangled ideas that really set us back rather than set us forward. I think I heard you.

DR. SAKS: If I can just make one small addendum to that and that is I don't think that we should look at it as a problem of finding the right gadget necessarily to fix it. I think that one of the serious problems with the kinds of functional literacy skills that Roy is talking about is that it may require more comprehensive school-wide kinds of interventions. In other words, changing schools in major ways at the junior high school level and following through. You can teach the decoding skills that are measured at third grade level by having a reading specialist come in. I'm not sure you can have a specialist come in and fix this, and that suggests junior high school and potentially high school solutions to these problems. I don't see anyone paying very much attention to the junior high school problems.

MS. CAMPBELL: Emeral, I'll take one more question.

MR. CROSBY: Before he gets away, I notice that you did mention that probably our best vocational training is taking place with the employer. I was wondering whether or not you had a recommendation that we should, in the school system, eliminate this vocational training and move toward letting the employer be responsible? What is your feeling on this? Should we

eliminate the vocational training and go into some kind of core training?

DR. SAKS: Well, I guess if we can't, on average, do it a lot better maybe we ought to reduce its size. But I think what we really need to do is to improve the quality of the vocational training and to do what I would call general vocational training. In other words, you don't teach a person how to use a particular machine. You teach a person the kinds of skills that allow him or her to be able to adapt to different kinds of machines. The student that's graduating today is going to spend fifty years in the labor force. Teaching very specific vocational skills doesn't make a lot of sense in most cases. Perhaps keyboard skills and a few skills like that are exceptions. We have to define general vocational skills and we have to do a lot better job on average. That doesn't mean there aren't some terrific vocational education schools in this country, but on average, the news is not, I fear, very good.

MS. CAMPBELL: Thank you very much. We're pleased to have had Dr. Saks and Dr. Forbes on the first session on Education in the Changing Work Place. We regret that we do not have more time for discussion but hope, perhaps, during the break, we may engage you again.

Our next presenters on Work Place Needs and Training Programs will be Sol Hurwitz, Senior Vice President on the Committee for Economic Development. We will have Martha Brownlee

representing William Maloy, Deputy Chief of Naval Education and Training for Research and Development; and Normal Pledger, president of the Colorado AFL-CIO. We're very happy to have you with us and we're looking forward to your presentations.

Would you begin, Mr. Hurwitz?

MR. HURWITZ: I'm pleased to be here this morning representing the Committee for Economic Development, which is an organization of 200 leading business executives and educators, and I should add, Commissioner, that my interest in education goes well beyond the four walls of the Committee for Economic Development. I served for six years as a member of the Board of Education in Rye, New York, and I'm presently an overseer of Colby College, so I have a deep interest in the broad mandate of your Commission and I applaud it. It is a wonderful effort.

I'm here today to discuss the relationship between business and education and the need to imrpove the work readiness of our nation's students. Bob Andringa mentioned the temperature of the room. Perhaps by my remarks I can elevate the temperature somewhat and perhaps even shed some light on some of these issues, but I do hope at a minumum to generate some heat.

I'm going to underline, excerpt, and elaborate on my written presentation. As a partnership of business and education, CED has had a long standing commitment to the role of education as a key factor in economic productivity and growth. CED is a non-partisan, non-political organization of individuals. The

trustees do not represent their company view as such, and this objectivity gives special weight to the opinion of CED policy positions and their impact on the national policy debate.

CED recently embarked on a new study that will attempt to assess the impact on business and the economy of problems in the public educational system at the elementary and secondary levels, and to try to determine what role business can play in developing a literate, adaptable work force to meet the changing needs of the economy in the next several decades.

It's very important when you're dealing with educational issues to avoid the tendency to generalize. It is true that education is suffering in this country, suffering seriously, that public confidence in public education is declining, but at the same time it's important to recognize that there are countless systems in this country, schools, administrators, teachers who are doing excellent work and who represent excellence as this Committee defines its mandate.

Our challenge will be to try to elevate, to identify, to put forward the best that these systems have to offer as a model for education in this country. Education is in a shaky state and this has serious implications for business and for this country. Business is disillusioned by an educational system that turns out too many graduates who are poorly prepared for employment. Young people entering the work force have language and mathematical skills that are so deficient that they

require remedial education before business can expect them to make an adequate contribution. Corporate people are concerned that many new workers, even if they're able to qualify for entry-level jobs, lack the ability to learn new and more complicated tasks and are unable to advance to more demanding and responsible positions.

What this has done has been to spawn one of the fastest growing educational industries in this country--in-house corporate remedial and continuing education programs. Now these programs cost corporations an estimated $30 billion a year, an amount approximating public expenditures for colleges and universities each year. Some say that somewhere between 1 to 8 percent of corporate educational expenditures are earmarked for remedial purposes alone, and while this may represent a small portion of total corporate expenditures on in-house education, it nevertheless indicates that business is beginning to take on the job of public education and to make up for its failures.

Corporations are concerned. They're convinced that labor deficiencies have become a significant source of productivity decline and a substantial drain on corporate resources in ways that are incalculable and go beyond the immediate cost of remedial programs. It's been said that corporations are just awakening to the problems of education at the elementary and secondary level. They've been very much involved in it, but it's only lately that corporate executives,

and particularly the leadership of corporations, are beginning to recognize the severe problems at the elementary and secondary level.

This is not so of the trustees of the Committee for Economic Development who, since 1949, when the Joint Council on Economic Education was founded under its auspices, has been involved in a wide range of educational issues. Mike MacDowell of the Joint Council will be on a panel this afternoon. But CED trustees have been very much concerned with curriculum and financing issues and technological issues that relate to education, and more recently, the problems of minorities and disadvantaged groups. They have also studied the problems of higher education, specifically the management and financing of American colleges. All of these issues have been on CED's agenda.

CED's recent landmark study, "Jobs for the Hard-to-Employ," recommended improving the school-to-work transition through such programs as cooperative education, vocational education, and job placement programs, and in a sequel to that statement called "Employment Policy for the Hard-to-Employ," CED recommended integrating to the extent possible all education employment and training policies, both public and private at all levels of government--federal, state and local.

I want to talk about our new study on the relationship between business and the public schools because I think it's

going to be a significant study. But we have just begun to define our task. Our preliminary research has made it obvious that more attention has to be paid to enhancing the human factor, productivity, developing human capital. Technological advance may be essential for reinvigorating a nation's economy and catching up to our competitors abroad, but technology can be a boon to productivity only to the extent that we have a well educated and highly skilled work force that knows how to create and handle that technology.

In preparation for this study, the Committee conducted a survey of its trustees earlier this year to find out just how corporate leaders view education in the larger context of economic progress and to determine which issues were of greatest concern. I think their response was important. It was a very large response--more than 50 percent of our trustees responded and that's over a hundred corporate executives. They pinpointed four interrelated areas where they felt they were let down by the education system.

First, they felt that too many students are graduating from high school and to some extent from college unprepared to enter the world of work, and when I say "unprepared," this lack of preparedness is not just limited to academic preparedness. They're concerned about attitudes, values, behavior, dress, punctuality, and yes, even penmanship.

Second, there are too many prospective employees who

are deficient in basic skills.

Third, they pointed out that in the future entry level jobs will become increasingly more challenging, both technically and intellectually, hence they emphasized that the schools need both to develop more technologically-oriented subjects and to improve fundamental reading, writing, listening and analytical skills.

Finally, they felt on the average that the quality of teaching and teacher training for elementary and secondary schools is mediocre at best, particularly in math and sciences. That would certainly extend to writing, as an earlier witness indicated, and that finding ways of improving teaching in this country is essential to improving the quality of learning.

I want to summarize by asking, "What can business do to improve the nation's schools?" and providing an answer from the Chairman of the Committee for Economic Development, Fletcher Byrom, the retired chairman of Koppers Company. Mr. Byron who told a gathering of the National Association of State Boards of Education that, "The quality of the workers entering the work force in the near future will be one of the determining factors in the effort to revitalize the nation's economy." As an employer, he said, "What I need are workers who are fundamentally literate--who can read, write, do arithmetic and algebra, and who have a more or less common base of knowledge." What he was saying was that if he hires an entry level worker in

Pittsburg, that worker ought to have generally the same skills of a worker that he might hire in Baltimore or in Denver or in San Diego. "Above all," he said, "I need employees who are flexible, who have learned how to learn, who have the capacity for independent thought and the potential for leadership."

Thank you very much.

MS. CAMPBELL: Thank you. Martha?

MS. BROWNLEE: The military is, and should remain, a microcosm of the nation as a whole. We are firmly committed to a diversified work force; and over the past decade, we have vigorously sought to achieve this diversity by race, sex, and national origin and from across the entire socioeconomic spectrum.

Once with us, however, life is very different from that of the young executive, the white-collar or the blue-collar worker on Main Street, USA. The lion's share of our people will live and work at the cutting edge of high technology. But, in addition, they will routinely encounter unique safety hazards, and they will perform collateral duties as policemen, firemen, and many other jobs which are commonplace for the residents of cramped, high stress small towns we send to sea or maintain as military bases around the globe.

So, to go down to the sea or to control the land and the air is an increasingly sophisticated task. Our operations, engineering, and weapons systems are requiring more and more

highly skilled technicians. But, the time and the cost to train superbly qualified people have increased dramatically over the past three decades. For example, the sonar technician teams of World War II-type destroyers required 63 man-weeks of training. Today it takes 827 man-weeks to train their counterparts on new Perry class frigates. Two generations of aircraft have more than doubled the training requirements for crews alone. Training for data systems technician teams in 1960 was zero. Today it is 622 man-weeks for those on surface ships. And 16,800 man-weeks for technical personnel aboard Trident submarines is ten times the training investment for like crews in the diesel boats of the 1950s.

It is little wonder, then, that these new systems require people who can learn, who have learned, and who are committed to continued learning. We cannot tolerate a military comprised of less than adequate citizen soldiers. They would be a danger to themselves and a danger to our national security. So, how are we getting on?

Today, all of the services are enjoying a productive recruiting environment, caused perhaps by our economic problems. The number of this year's recruits with high school diplomas is 80 plus percent. But it is disquieting to find that those reading below the ninth-grade level, which is the minimum to respond to safety instructions and administrative requirements and not fall over the pointy end of the ship, will be about

24 percent or close to 20,000 young men and women. Please note that I say required for minimal performance. Not many in this group can deal with the 300,000 pages of 12 to 14 grade reading level documentation required to maintain our F-14 front-line fighter.

To not disenfranchise these young people from more career enhancing opportunities, the Navy has established reading programs in conjunction with recruit training and at initial skills training sites. The Army is faced with similar problems and has taken similar action. Even the Air Force has been forced to establish reading programs at the basic military training school at Lackland Air Force Base. Furthermore, we are finding that a large number of those coming to us have math deficiencies which affect all high technology needs. In the Navy, nearly half of those 25,000 sailors who attend our basic electronics and electricity schools have trouble with math no more complex than solving equations with one unknown. Again, the Army, the Air Force, and the Marine Corps experience is not unlike ours.

I might add that the greater the deficiency one has in these traditional skills, the greater the likelihood that he or she will be unduly victimized. A poor self-image, problems coping with reality, di .culties sticking to a job, and handling a disciplined environment are the same old contributors to poor performance, with low productivity very close behind.

On the bright side, we in the military services have a

cup that's three-fourths full; still it's one-fourth empty. It means diverting our resources from our primary mission, and it means that even with our modest remediation effort, a sizeable number of our new recruits will start out at a disadvantage.

What, then, is the product of schooling best suited to high productivity within the military--both for the officer corps and the enlisted ranks? (The traditional skills are foremost: reading, writing, and computation, commensurate with levels of responsibility. These are essential to controlling one's destiny. Physical fitness is also high on our agenda.)

Broad scientific and technical literacy is a must. All officers need not be engineers and all enlisted people need not be high technology trained. But lasers, holography, high speed computers, and artificial intelligence are the realities of our world. Eighth-grade general science or eighth-grade level college physics is not going to hack it for us. It won't give people the confidence to manipulate the technological society of tomorrow.

Information technology skills are absolutely essential. People need to come to us already exposed to computers as tools for living and learning. While our sophisticated environments highlight this requirement for us, the signs are unmistakenly clear that this is a matter of great importance for the entire society. Many scholars predict that the disparity between computer literate have's and have not's will create a new group

of socially disadvantaged, which we can ill afford.

For many, perhaps not all, there needs to be a revitalized interest in acquiring second language ability. A shrinking world, a global economy notwithstanding, men and women in uniform are, by the thousands, our front-line ambassadors.

We are confident that the states are getting a handle on traditional basic skills, but little attention has been given to higher order skills for the information society just around the corner. We need very specific efforts to provide learning experiences which encourage analysis, synthesis, evaluation, and the application of knowledge. These qualities are well within the definition of fundamental skills for the twenty-first century.

I am mindful that schools cannot solve all of society's ills. Still, they need to be on the cutting edge of generally accepted attitudinal development efforts. We're all looking for those with coping skills, realistic expectations, an appreciation of the values of others, a respect for truth, and a commitment to personal integrity.

Our needs, then, are for people who are moral, literate and committed to learning. We'd also hope for our share of those imaginative, creative people who can bring to our efforts the near look and the far vision; who, with their very presence, broaden our horizons and push back our frontiers. We don't

presume to know how to produce such a product, but that makes it no less an important part of our public agenda.

Finally, those of us in the people business must do a better job at collaborating among ourselves in program and research initiatives and in implementing promising practices which will improve the teaching/learning process and enhance our investment in the mind power of the nation.

While I have tried to make a case for the uniqueness of our military work environment, I have not argued for a unique product from our educational systems. To the contrary, the competencies which are important to us differ little from those which will provide the foundation for the fulfillment and the productivity of every citizen facing the challenge of the twenty-first century.

Several years ago, Admiral James Watkins, speaking to the Defense Orientation Conference Association, argued that a concern for the quality and the importance of the educational enterprise should warrant attention throughout the highest levels of government. It should enjoy equal status with energy, defense, economics, and foreign policy, and we should establish national objectives and display a national resolve in seeing to their accomplishment. But something must spark true national momentum.

This Commission on Excellence has the unique opportunity to be that something; to boldly seek a new public agenda and

proclaim a new priority for the education and training of our most precious resource. You can speak out for concise national goals and for realistic investments at the national and state level to ensure their attainment. You can encourage renewed citizenship involvement in the mission of education in this country. But most importantly, you can remind the people that frontiers have always awakened the spirit and challenged us to greater accomplishments. Before us is the frontier of the human mind. Surely this frontier, above all others, deserves our national commitment if our generation is to continue to look to the future with the unwavering belief that greater generations are still before us.

MS. CAMPBELL: Thank you very much, Martha. That was a very excellent presentation.

Mr. Pledger, we're pleased to have you with us.

MR. PLEDGER: Dr. Campbell, members of the Commission, ladies and gentlemen, I'd just like to preface my remarks by saying that really our greatest resource and the greatest resource of any nation is the education of its people. I am pleased and honored to have the opportunity to testify before the National Commission on Excellence in Education and present organized labor's views and some observations that I have made that I consider major weaknesses in our overall educational system.

It was suggested that I offer my perspective as a

union leader in these areas and I might say at this point that my second love besides serving the labor movement is in education. First, I would like to speak to the kind of education provided to high school students in preparation for a basic introduction to the world of work at the high school level. There are three essentials which I feel are crucial to any student if he or she is expected to accept or acquire knowledge, namely reading, writing and raithmetic. In order to understand and communicate you must be able to effectively read and write and to actively participate in our complicated financial world, one must have a good command of mathematics. Without these three skills educational progress would be greatly reduced. The schools, K-1 through K-12, have that responsibility but are not doing an adequate job in providing essential instruction in these three critical areas. At this time there is not enough emphasis put on the three Rs.

As a member of the Pikes Peak Community College Council for the last 15 years, we have been forced to address the weaknesses in our educational system. It was necessary for us to establish skills programs to enable the students to get beyond a certain level of educational attainment. We could also assume that this is a major problem throughout this country in higher education. The complaints that we have heard at Pikes Peak Community College from the Joint Budget Committee of the Colorado State Legislature was that taxpayers have already paid for these

skills. They are now being asked to pay again for the skills because they weren't learned in high school. This is one important area of concern if not the most important area, and it must be vigorously addressed if we ever intend to achieve excellence of education in our country.

Secondly, the commitment and responsibilities of business and industry in providing training for their employees is vitally important in order to develop a productive employee and if any business is expected to be successful. One could question if it is the responsibility solely of business and industry to provide necessary training, retraining or upgrading the skills of its workers. I think not, because the majority of businesses are small and do not have the resources to accomplish these educational and training needs. Therefore, the community college concept of education comes into play.

Community colleges provide an educational vehicle which is flexible and mobile and can very readily set up special training programs to meet the needs of a particular job requirement, and I must say as we move into the twenty-first century and we move into highly technical and new technology and sophisticated kinds of communication equipment, that I feel that he community college concept, that vehicle, should be given a greater role in providing this kind of education.

This can be done on a partnership basis where the college can furnish the classroom, the laboratory, and the

company in some cases provide the training equipment, and in some situations also furnish the instruction of the teacher in special courses. Where there is a collective bargaining agreement the union can and will be a very active partner in developing these training programs. Also, where we have this kind of working relationship cost effectiveness will be more of a reality.

The weaknesses that I observed in this type of educational effort is that we fail to establish and utilize advisory committees or a linkage between the colleges, business and industry and organized labor can be strengthened.

The third area that I would like to relate to is apprenticeship training. Having served a four year apprenticeship in the electrical construction trades has given me considerable knowledge as to how apprenticeship programs are carried out, especially as it relates to the International Brotherhood of Electrical Workers. Our program is administered jointly with the electrical contractors, with an equal number of representation from both the contractor and the union. This composes the makeup of a joint apprenticeship committee. Our program is jointly funded as well. We require that a person to make an application to serve a four-year apprenticeship in the electrical trade must have at least a high school diploma or a GED equivalent. The applicants are required to take an aptitude test to see if they are suitable and could adapt to the tasks

that are required of them in this highly skilled electrical trade. After all the applicants have been tested and those that have passed the test will be called in to appear before the Joint Apprenticeship Committee for a personal interview. The committee will review their credentials and select those applicants they feel are the best qualified. The number of apprentices that are selected each year may vary depending on the needs of the particular area or jurisdiction. At this time our depressed economy is having an undesirable affect on the number of apprentices we can indenture into our program.

To give you some idea of the state picture of indentured apprenticeship programs in Colorado, we have 3,052 apprentices presently enrolled; 94.3 percent are males and 5.7 percent are females; 3 percent are black and 12.9 percent are Spanish and of that total, 18.8 percent are Vietnam veterans. I feel that we have an excellent apprenticeship program in Colorado and we are turning out excellent skilled workers.

If there is a weakness in our apprenticeship program in Colorado, it would be with the economy. As it is now, we are not able to train the numbers that we would like to train.

I would conclude my remarks by saying that we need more lay people on school boards, we need to strengthen our linkages between our educational institutions, business and industry, and labor. We should develop better vocational and technical programs at the high school level and we in the

community college system must strengthen our counseling programs to work with the counseling programs of high schools and also we are called on to do a better job in educating our state legislators in the very important needs of vocational and technical education and that those programs which cost more than the programs in general studies, history, you name it, that we should adequately fund vocational and technical programs. We in organized labor are proud of our long history in support of education. We strongly believe in excellence in education and should demand the best for our education dollar.

Thank you very much. It's been a pleasure visiting with you and I want to commend you and the members of this Commission for conducting these kinds of hearings and I hope that yes, we can work for excellence in education. We can't continue to fund in the direction we're going in and I think it's too costly and we have to reorder some of our priorities in education, and as we move into the twenty-first century. I think at this point I sometimes wonder if we are really prepared to enter the twenty-first century and I think we ought to have some goals. I think you must establish a program to give us some direction on where we want to be in the next twenty years as we move into the twenty-first century and what are going to be our educational needs and what can we do at the community college level, the four-year institution, the junior colleges, public and private institutions to get excellence because by having

excellence and efficiency in our educational system we'll all be served by that. Thank you very much.

MS. CAMPBELL: Thank you very much. I think the historical record of education in this country does indicate that we respond to challenges, opportunities and needs and probably more rapidly than many people would expect. I've been in this business of education such a long time that I've seen the cycles repeat themselves at a higher level, but nevertheless, repeat themselves and I do thank and I appreciate the fact that all of you have spoken to the need for us to rise above and to raise our sights to the needs of the twenty-first century.

Are there any questions. Yes, Arly?

MR. FOSTER: Thank you, ma'am. Mr. Pledger, you said that the state board showed reluctance to want to fund education on a certain subject twice once --

MR. PLEDGER: Well, really, I don't think it's the state board, but it's the state legislators.

MR. FOSTER: Oh, excuse me.

MR. PLEDGER: But we have to do a better job in education and I know my role as a member of the governing board at Pikes Peak Community College, I think I have to, as well as the other four members of that council, have to do a better job in lobbying and educating the state legislators to put more emphasis and put more dollars into good, constructive vocational and technical programs. It costs more to conduct a program in

electronics or communication than it does to teach history or some of the general subjects, but I just feel we haven't done an effective job in that area.

MR. FOSTER: Has this reluctance on the part of the legislature to fund the second time around a course in English and mathematics and so on, has this had any effect on the schools in Colorado? Do you notice that they've made changes in the way they've handled their affairs?

MR. PLEDGER: I couldn't answer that. The Commission on Higher Education may be able to answer that, but I haven't done the review. I haven't met with the various high schools to see if from there, from the conversation we had or the medium we had with the Joint Budget Committee which made that determination, whether or not they've gotten back to the K-1 through K-12 and strengthened those programs or whether the school boards, it's been brought to the attention of the school boards maybe to reorder and put greater emphasis. I don't know whether that's taken place or not.

MS. CAMPBELL: Emeral?

MR. CROSBY: First, a comment before I get down to the question, if the question even develops. The first thing, if we had some of that $30 billion that's being spent in remedial and continuing education at the corporate level, we might send you some youngsters there that would have those basic skills. The other two presenters are not with us at this point but I keep

hearing attitude, attitude, and just commenting to Wallace, I was hoping that we didn't end up with a panel involving the church and then the church said, you send us some kids with better attitudes, better morals and know how to respect each other, then we'll give you a better product. We are asked to do some things that I'm wondering now whether or not we're being realistic in terms of what is happening. And I'm not saying that developing good attitudes is not. Many of the youngsters that you may get, it you check something else other than just that they graduated, you might find that we had the same problem with that youngster, too, that we had a problem with attitude, and along with a poor attitude he probably had very poor attendance, very poor punctuality and consequently, he managed to get out not really having those particular skills.

I guess the other thing is if we are looking at what is happening in our society, and then at the same time the demands that the military, the business and labor are asking, we have to ask whether or not these things are compatible. I'm thinking of some research we were involved in earlier. The typical family that we call part of the ideal American family--husband, wife, two kids--that that no longer exists. That's only 7 percent of the families. Nearly 50 percent of our youngsters now are part of a one-parent family. We can also look at what is happening every day in terms of how they spend their time. Youngsters don't spend their time with adults. They

either spend it in front of the television, or they spend it with their peers, or they spend it in front of Pac-Man or whatever. This is happening in the general society. At the same time we are asking the completely opposite of that kind of relationship in terms of moving out into the world of work, and I'm just wondering, who's going to set the priorities. Who's going to set the national goals? Last night one of our presenters was telling us that there are some things that we in education will not do. We are not going to change the birth rates. Somehow or another people regardless of what we say will go ahead and do some other things anyway. We probably won't even change immigration. I'm wondering now, do you see from your vantage point or from your position whether or not there's any correlation with what is really happening in society, and what you're also asking for, and then in terms of what the schools are doing. Am I confusing the thing?

MR. HURWITZ: I think there are problems in society that the school alone can't remedy. I think that gets to the heart of your point. The schools are expected to do much more than they're capable of doing under an educational system such as the one we have today. Schools can't deal with all of society's problems, but I suppose that business does expect schools to do more in the way of disciplining students, and when I say "discipline" I don't mean punishment; I mean encouraging a sense of structure and a sense of direction among the students

that go through the system. Perhaps the expectations of business are too great in that respect. There are many other institutions in society that share a role for the developing of good attitudes, sound values, for encouraging productive behavior. But I suppose because students are spending so much time--or at least are supposedly spending so much time--in the schools, it is one institution that can reach them. It's a great challenge. The problems that you just identified are very real problems, and they are problems for the schools as well as for business. In fact, they are also problems for higher education, not just for elementary and secondary education.

I'm not certain that a national campaign, a national program, and certainly not national legislation can deal with that problem. It has to be dealt with at the local level and by the smallest unit of society: the family or the substitute family, the classroom, the school--all the components of the society have to work together to deal with it. It's a complicated problem. It won't be solved overnight. But I do think the schools have a role, and I believe that's what the corporate executives who make up our organization are telling the schools. The schools do have a role.

MR. CROSBY: May I ask just one more question. I appreciate what you're saying but at the same time we say not on a national level. And then I heard the presentation about the Navy. Now, I know Governor Quie is not going to have a Navy,

you know. He might have the National Guard but he's not going to have --

GOVERNOR QUIE: National Guard.

MR. CROSBY: And he's not going to end up ordering his National Guard to Lebanon or something like this. That's going to happen at a national level. At the same time we're expecting this little local school board or this little local district that probably has no more than five or six hundred kids in the high school to prepare those kids to go out on a national level to help defend the country. Yet at the same time we may be cutting back all kinds of support that's going to help that. I'm just throwing this in.

When I was speaking about some other things that's happening, I just wanted to throw this in. We have a problem. My school is on a main street in Detroit. The Pac-Man is going good, and in fact it has become the latest target for theft. People have stopped breaking into pop machines and so forth. They are now stealing Pac-Man machines. They are just absolutely stealing them. Anyway, a couple of businessmen opened up an arcade in the area of the school. We started arresting youngsters and giving tickets to the proprietors for having youngsters going into these places during school hours. The next thing you know a law was passed saying that if it's an arcade then it's okay for youngsters to be in there during school hours. If it's not an arcade, then they cannot. Well,

an arcade means you have five or more machines. All of a sudden now everybody has five machines. We can no longer go in and harass the owners or the kids about being in there during school hours. That law regarding the use of the arcade was just passed within about the last four months. Pac machine is big business and the lobbyists are big. So now we've got another problem on our hands. How do we keep the kids out when we legally cannot use law enforcement.

MS. BROWNLEE: I'm not going to help you, Mr. Crosby, but I'm going to throw in one more when you were going through the list of concerns. In the military context we have two other additional things to consider. One is the fact that the military by their very nature require mobile citizens, so we are hopeful that we will get those that feel that they can be mobile without difficulty. And added to the other list is that implicit in military service is separations from some of the family values that have been stressed. So in addition to the other concerns you mentioned, we have these two that we're working on.

MR. CROSBY: We probably need to stop the corporations because they want kids from all over having good basic skills but then all of a sudden they decide to move down in lower Mississippi where they can get cheap labor because the people don't have those skills and they pay less taxes.

MS. CAMPBELL: It's a complex problem I think being pointed out. Are there other questions?

MR. WALLACE: Mr. Hurwitz, am I hearing you say that people are coming to the business too soon and more training is necessary, or to use an educational phrase, they're not mature yet?

MR. HURWITZ: What our trustees are telling us is that they are not prepared for entry level positions. In that sense, perhaps it's too soon, but not too soon in a chronological sense, too soon in a preparedness sense, and that's where you find the problem. I don't think this necessarily suggests an addition to the length of education that pupils receive in high school, although it does suggest additional education at the work place. But it's not too soon in the sense there ought to be an extension of the public educational system in order to deal with remedial problems.

MS. CAMPBELL: Are there other--Governor Quie?

GOVERNOR QUIE: First, let me say that between last night and so far this morning I'm getting more and more pessimistic and I think of Emeral and spending more money on education. We went through the heyday of increased money for education and nobody expects us to be spending more money for education. We're worried whether we'll be able to continue to spend what we are now especially on the business and the labor side where there has to be an impact on education.

I'm concerned that there also is a change in community. I've watched in my own state where the businesses were locally

owned for the most part. There was an ingredient of involvement by the CEO in the community to a much greater extent than the corporations that are part of a national or international corporation with a few limited exceptions where I know they instruct the CEO in that local community to be involved, but that to me is an exception. That's a problem that I see and I don't see that we're going to correct this unless there's a direct involvement of business and industry in the education. That's the one place where I think there's going to be the break.

But to see the other side, organized labor, my concern is that AFL-CIO, numbers are going down when you look at it. I don't know if that's going to --

MR. PLEDGER: Bad economic situations. We're losing numbers, yes.

GOVERNOR QUIE: Yes, and that isn't just this recent economic situation. We usually think of labor as industrial unions and that basic manufacturing is going down in this country.

MR. PLEDGER: We lose membership in some areas and we gain it in others. In the service industries we're picking up membership and so we're, I think we're basically, the national AFL-CIO, staying pretty constant at this point, not a lot of growth.

GOVERNOR QUIE: But my question is, when an organization goes through that kind of trauma, and it is trauma

to me when you look at the history of organized labor as basically industrial unions. Now you're changing to where it could be service and the goverment people. I think we've come to a limit in growth there the way the revenue situation looks to me. Can you then provide also the injection of support into the education system? For a long period of time organized labor was not involved in community to the extent that they are now in education and so forth. A person like yourself sitting here, 30 years ago you had to hunt for a person in organized labor like that. Now you find them all over, but my question is, are you going through the trauma now that you won't be able to do much more of that kind of leadership to improve the quality of education? That's a question I have to each of you.

MR. PLEDGER: We may be going through a trauma at this time, but I feel that our sense of dedication and support of public education especially, that we have much to offer and I feel that we will, we'll continue. It doesn't do any--whatever respect to the whole economic posture of this country, and it's vital to our well being, not only through an apprenticeship training program which is in their skill trades basically. Now the AF of L, which was the front runner of the entire labor movement in this country, and then in 1930 is when we have the CIO was the industrial unions, but at that time basically the skilled trade was the building trades and they had their own training programs. We still have them, our own training programs

jointly funded by the contractors and the local unions through the various jurisdictions. So we have that commitment and we'll continue that commitment and I think in just general education that the labor movement is one of the greatest supporters and we'll continue to support education of our people and the citizens of this country. We are totally committed to that and we'll find the resources through legislation, electing representatives who believe in education and want to fund it but will strive for excellence the same time. I think we'll continue to be totally committed to education and bring about the resources that are necessary.

MR. HURWITZ: I want to comment on one of Governor Quie's observations because I think it is significant and it's certainly an issue that has concerned the Committee for Economic Development. It's the problem of national corporations that have plants located in communities throughout the country. There's a concern that those plants don't have the same stake in the community that a local corporation might have.

Earlier this year the Committee for Economic Development issued a policy statement dealing with public-private partnerships in urban communities, and in that report there was a very strong, forceful recommendation that the heads of corporations--board charimen, chief executive officers, presidents of corporations--as a matter of policy encourage their middle management, the managers of their field operations and plants,

to become involved in the activities of that local community. They should encourage it, but they should go beyond that. They are asked to measure the performance of those managers in terms of the extent to which they are involved in community and urban affairs. It's only if you have that concern at the top level, as a matter of policy, and if you implement it with a policy that provides an incentive for involvement, it's only then that you get that involvement. But I recognize it is a problem and I think it can only be dealt with at the highest levels of corporate management, and that is something that the trustees of CED would like to encourage.

MS. CAMPBELL: Thank you very much.

GOVERNOR QUIE: Can I just ask one other question?

MS. CAMPBELL: Yes.

GOVERNOR QUIE: If I may--and that is, the people who are the professionals providing the education in schools either belong to the federation as far as the AFL-CIO or the other organizations that the federation talks about, education association which is as much of a union themselves. How do you as an organization feel about the double education you're talking about? You come out of the crafts union as an electrician. I know enough about electricians to say that they are proud that when they build a house or a building, that it's the best there is, that non-union is not as good as theirs, and they sell it on that. Now, how in the world do you contend with the fact that

somebody has to educate those kids over again. It's just like hiring somebody to come in and rewire the house after the union person has done with it.

MR. PLEDGER: I'm not saying that just because you belong to an AFL-CIO and whether you're a teacher or whether you belong to CEA or NEA that makes you a better qualified teacher. What I'm saying is that we have training programs in-house. We don't just serve a four-year apprenticeship program. Because of changing technology in the electrical field, we find ourselves in the classroom keeping up with the changes, the technological changes, the advancement in the electrical industry. So we feel that by having an indentured apprenticeship program which is approved by BAT, Bureau of Apprenticeship Training, federal program, and with the council here, apprenticeship council in the State of Colorado, that we have an effective, efficient, very excellent program whereby by going through this training you are better qualified to serve the public and especially when you talk about the safety of individuals when you're dealing with something as volatile as electrical power, the harnessing of electrical power. So I'm not making a distinction between the qualities of an educator. We have good and bad and whether they are CEA or NEA or AFT, I think we have to prepare those who are going to transmit knowledge in education to our children of whatever age, that we ought to look for the best qualified and how do we pass that judgment. And when we find

those folks who are going to transmit that education, the best qualified should have a decent rate of pay and we find that's a problem in getting quality teachers, whether they be CEA or NEA or AFT and we have to--we get what we pay for. I think that's another big problem we have in getting top quality education. It's really a service. It's serving people, human beings and it's the student that really matters and are we having the kind of education in the institution to prepare someone to transmit the knowledge to the student, which is so important.

MR. FRANCIS: Madam Chairman, one comment, and I know we've got a break.

MS. CAMPBELL: We're off time.

MR. FRANCIS: Yes, but we're much better than we've been in all the panels I've been thus far so two or three minutes won't kill us. We'll make it up.

There is something that's significant for me and Governor Quie has touched on it. I'm not naive. I don't think there is going to be much more money for education, but if we got, as I think you have indicated from your statement, the national resolve for support and commitment for education from just the triumvirate at this table, corporate, defense, labor, that is perhaps the first step towards approaching the complicated sophisticated problems in education, and I'm not so sure that we have had that in the dimer n that we've heard it this morning, in the last decade, for example. I think it is perhaps

significant if this Commission does indeed say, having heard this in Denver, that we believe there is a coming together for support of education, the likes of which will produce a better product for all of us, we may be on the way. And I say this because we have been separate too long in individual responsibilities. I think at this moment in this nation we are having some, and I'm saying this--I represent part of higher education--debates about what should go to defense, what should go to education and the like, but if we all come together and said, in effect, we must both be clear about what our priorities are and our national objectives and commitment. I think this is indeed significant, and I wanted to say that, Madam Chairman, rather than saying how to. We're not going to teach people how to teach, but get them committed to finding the solutions.

MR. HURWITZ: I'd just like to intrude on the break for one minute to support what my partner from organized labor has said about incentives for teachers. I don't think there is a more important issue, and I'm speaking personally, not on behalf of CED now. I don't think there's a more important issue in this country than incentives that will bring into the system good teachers because when you're talking about the need to improve writing, a subject that came up in the earlier panel, you just don't do that by encouraging or by mandating or by making it a policy. First, the teacher has to want to take the time, has to make it a part of her procedure, to assign writing.

Second, it means that the teacher has to grade the paper, and that takes time. Finally, it means that the teacher has to work personally with the student, and that takes time. And teachers simply don't have the incentive to invest the hours of time that are required to improve writing skills. The system has to provide some kind of incentive for teachers and not just a monetary incentive. There has to be an incentive built into the system to encourage the teaching of these basics that we're talking about. Until teachers begin to assign writing--well, let's start even further back. Until teichers themselves can write clearly and persuasively, until teachers have the incentive to assign writing in the classroom, until teachers have the incentive to correct the writing assignments in a thorough fashion and work with the students to improve their writing on a personal basis, writing will not improve.

MS. CAMPBELL: Thank you very much. We will have about a ten-minute break.

Before you leave I want to introduce Dr. Bob, Robert Worthington, the Assistant Secretary for Adult and Vocational Education in the Department of Education. Nice to see you, Bob. We'll see you in ten minutes.

(Whereupon, a brief recess was taken.)

MS. CAMPBELL: If we may begin again, please.

We're pleased that a number of people have signed up for public testimony this afternoon between 3:45 and 5 p.m. We

have time for about three more if you would be interested in testifying before the Commission. If so, we'd appreciate if you'd get in touch with Haroldie Spriggs, who is walking down the side. Thank you.

We're pleased to continue talking about Work Place Needs and Training Programs. I'd like to introduce Linda Sorrento, who is in corporate training, and is replacing Lucretia James, Kathy Collins Smith, the Executive Director of the American Institute of Banking, and Wade Murphree, the Executive Director of the Denver Institute of Technology. We're pleased to have you here and we'll begin with you, Linda.

MS. SORRENTO: Thank you. I'd just like to thank you for the invitation to be here, and just by way of introduction I have a background in education, government and industry. I've been a teacher. I've worked in the government as a vocational planner, and I'm presently in corporate training at Storage Technology, so this is kind of an interesting perspective and I'm glad to be here.

I'd like to begin by just giving a background of Storage Technology. The corporation was founded in 1969 and we are a major manufacturer of computer data storage equipment, high-speed impact printers and card readers, and telecommunications products. We have 16,000 people who are employed with us worldwide and over 8,500 employed in the Louisville, Colorado area, which also is the company headquarters, corporate

headquarters.

Just by way of an overview, over the next decade 30 percent of all jobs will be in the high technology industries and part of this high technology is in the computer revolution often called the quiet revolution which is really impacting our daily lives unlike anything since the Industrial Revolution.

Information contained in this presentation is really predicated on the fact that people really do want to make a contribution and make a difference, really, through the kind of work they do and especially in this rapidly changing technological environment.

I'm going to focus on five main areas. The first is the observations that we've made of the areas in which people are prepared and unprepared for employment. I'm going to get somewhat specific in that. Secondly, an overview of the internal training that we do at STC; third, the future and job perspectives in high technology; fourth, the responsibility and role of industry; and fifth, some recommendations.

So to begin first with the observations that we've made of employee preparedness: on the technician entry level we have found that generally these people are prepared in their knowledge of basic electronics. On the higher level, senior engineering and manufacturing technician level, we have found that they have an average basic electronics background, and I'll get into that a little more later. For the engineers, the

undergraduate degree, we've found that they have the technical expertise and most of them have actual experience in direct application of their skills to their jobs. As far as skilled laborers, such as millwrights, painters, carpenters and the like, we've found that they are prepared, especially those completing apprenticeship training programs.

As to the areas of unpreparedness, on the technician level for these higher level techs, the senior manufacturing and engineering technicians, they, although they possess the basics, we have found that they have no knowledge of advanced electronics for the most part and in particular, they have little or no computer experience. The secretaries, and we've heard some of these same things earlier this morning--generally they're unprepared in word processing skills, and as for the engineers on the undergraduate level, they seem to lack a background in the liberal arts and humanities to kind of provide a balance for the technical training and orientation that they have. And what we have found is that when these people are promoted to managers, the lack of these skills really becomes apparent in interpersonal communications and dealing effectively with people.

Now, in general at the high school level, the basic entry level, and the areas just immediately above that, there's a need for better preparedness in the following: this we have heard this morning, math, reading, science, reasoning skills, work attitude, communication skills both written and oral, and

career education. I'm going to highligh some of these now.

In the math, reading and science area, any upward or lateral mobility within a company becomes increasingly difficult without some of these skills. It becomes very frustrating for employees to try to learn some of the more advanced technology without some of these backgrounds. This becomes a real block to their learning. As for the reasoning skills, we have found that employees generally need more experience in making inferences, drawing conclusions and solving problems creatively. Problems need to be viewed less as problems and more as challenges and opportunities.

As for work attitude, we have found that the transition especially for the high school students, from the school to the business environment is difficult. Issues are loyalty, work ethics, taking responsibility for being to work on time, pride in a job well done, and demonstrating some stability in the areas of employment and productivity.

As for communication skills in general now, from assemblers to model makers, what we call our non-exempt classification of employees, lack the oral and written communication skills, and this is particularly apparent on employment applications, resumes, and even in the actual interviewing process itself. Poor vocabulary and inability to write complete sentences are also indications, and interacting effectively with others is another issue.

As for career education, employees seem to lack a clear sense of career goals and options, what the responsibilities of the employee and the employer are, and what is needed to develop an ongoing plan of action for their career development.

So in summary, it's recommended that schools provide a more stringent curriculum that emphasizes reading, math, sciences and reasoning skills without curtailing the liberal arts and career education. In essence, the challenge for educators is to create thinkers and creative minds that know how to solve problems.

A little about the internal training, overview of our training in the company. Most of the training at STC is technically oriented. We have over a hundred employees full time who are devoted to training within the state. We offer marketing, product knowledge, computer languages, job skills, assembly, on-the-job and field service training.

Corporate training and development is one part of that training, and it is a department within the Human Resources Division. We offer programs primarily in three areas: management, technical and professional, and we approach this really in two ways: classroom instruction, then also what we do is provide a division-based training which would focus on any development needs of that particular division.

So, for example, in the management development we have

three required courses; introduction to Management, Administrative Procedures, and Middle Management. And in the Management Development Program in particular this is a division-wide program and it's training for all the managers within the division, including the vice-president of that division. So what we give training in is three phases: the team building or organizational problem solving, managing human performance, and career development. On the Professional Development area, the courses that we offer here are really open to all employees. We offer such things as communication skills, time management, stress management and a train-the-trainer class which we give for those who conduct on-the-job skills training at the company.

On the technical level the courses are primarily for engineers and technicians, but some of them are open to other employees as well. We have introduction to data processing, blueprint reading, dimensioning and tolerancing, microprocessor courses and several semiconductor courses. We also have two apprenticeship training programs in electrical and HVAC (heating, ventilating and air conditioning) and these are available for employees who are already in those departments. The courses that we teach in the technical area of the company are really taught by people who are already employed full time by the company and they just train for us on a part-time basis.

We also offer some special areas: we have college degree programs that are offered through local universities that

use either on-site instructors or videotape courses, and in particular, we have an undergraduate degree in business administration and also graduate degree programs in business and engineering. We also have a tuition reimbursement program.

We have a new in-house program that has just gotten started at the company and it's called quality college training. This is backed by a commitment from the company executives who are going to be training the managers and the rest of the company on all aspects of quality improvements, and we're rather excited about that new field.

As to the future and job perspectives, we've really reached a point in the technology where we have created machines that can really generate more information than, and at a faster rate that we, than the human brain can assimilate and more quickly than we can possibly store. So the challenge is really to store more information in a smaller space at a lower cost. The advent of the laser light technology as a potential agent for increasing storage is really upon us. So what we really need are creative thinkers who have high level specialized skills to develop these ideas, but in addition, a word about robotics since this was mentioned earlier. Although robots are going to replace certain technicians, we still need the operators who have technical expertise to maintain these robots, and we need thinkers to create these robots. Some industries, especially the fast-growing service industries of the economy will not

utilize robots to this degree and workers can transfer their skills there.

What we're seeing in high technology is industries advance to provide their users with a total system of design and application, and so even though we need some highly technical specialized personnel, the employment field really becomes open to all the functions that support those areas, such as production and clerical as well..

Lastly, one of the other important areas is to develop a business perspective, knowing the dynamics of business and profit to be able to make sound, rational decisions.

Some specifics now on the responsibility and role of industry. We see some definite things of what it's really reasonable to expect of industry. Providing some cooperative education or internship programs. We've had three interns this past year in the corporate training department alone and we really see that as an area where from grade school to advanced degree level we can give students an opportunity to work in private industry in exchange for credits, too. The result is really twofold here. It's cost-saving for the company, and we also can return to the community by providing work experience for citizens.

Another area is advice and partnership. Information really needs to be shared on short and long-term strategic planning and forecasting needs. Educators really need to know

what the needs of industry are in order to develop students who have marketable skills. And industry continuously needs to serve on various advisory boards on the governmental, educational and community levels. We see industry leaders as guest lecturers teaching seminars and giving lectures in the areas of technical business sense and new technological developments. And in new hires, we promote a lot from within but we also see that we need a balance in recruiting in the community. So to summarize now and give some recommendations.

Educational institutions need to focus on math, reading and communication skills, and the direct application of these skills really needs to begin in grade school. Students have to have a reason, know why the skills are important while at the same time have an opportunity to explore a lot of career interests. Education can focus on business opportunities from these levels with direct training experiences through the education process. For example, having computer science students employed by university data centers while they're in their training is excellent and also any of the junior achievement programs.

Perhaps most importantly, we need to establish some kind of vehicle where we can blend the three worlds of government, education and private industry. We need to support each other more and empower each other on levels that we really have not. To a large degree, we seem to operate more in isolation

than we do cooperatively.

We need to support a commission with representatives from each of these groups to really study the needs of society, especially in this fast-paced informational society, and make curriculum recommendations based on that. We see this as getting support from top management. We need governors, college presidents, chief corporate officers as well as managers, instructors and school counselors.

We would hope that we could really begin now by being open to the ideas presented at this hearing. Thank you.

MS. CAMPBELL: Thank you very much. I appreciate that. Kathy?

MS. SMITH: I would also like to take this opportunity and thank you for inviting me here today to speak on training needs in the work place. To give you some information about myself, I am Executive Director of an organization called the American Institute of Banking. Prior to that I was involved in banker education for five years at one of the local banks here.

For those of you who are not familiar with what the American Institute of Banking is, I'd like to give you some background. We are an education organization for bankers. Our major mission is to provide banking education to the financial industry throughout the United States. We are part of the American Bankers Association. There are 600 chapters or organizations throughout the United States and we serve the

bankers in their community. The Denver area, our audience serves 112 banks and has a potential of 10,000 students. However, our annual enrollment is usually about 3500 in our class program.

As I mentioned, our basic purpose is to provide banker education. We determine what type of banker education to provide through various resources that are available to us, such as the American Bankers Association, the local banking association such as Colorado Bankers Association, and individual bankers. We keep apprised of the new regulatory changes, the new products, and the new services the banks and financial institutions are able to offer. From that we develop a curriculum program in both a class format and a seminar format.

Our basic curriculum consists of the basic banking classes; accounting, economics, principles of banking, data processing, cobal, trust management, installment credit, loan and discount, loan documentation, credit department management; all the different areas of banking that the entry-level banker needs education on. In addition to that, we provide specialized courses or services as the need arises on management development, supervisory skills, product services: various items that our bankers need to be kept up-to-date on in a quick manner.

In addition to this type of banker education that is available to our banks, each bank usually has some type of in-house training program. Those in-house training programs can

vary depending on the size of the bank. The majority of them, however, do have an on-the-job training program for their tellers, for their bookkeepers, and also for their new accounts personnel. The larger the bank is the larger that training department is. Some of the larger banks here in the Denver metropolitan area go so far as offering sales and product training, motivational skills, management and development training, as well as concentrating on the specific items of banking.

The curriculum as offered by the American Institute of Banking and in-house training seems to be changing, however, based on some specific things that we're finding out about our bankers. I'm talking about bankers who are at an entry level position; people that are just going into banks that may be either from another industry or in most cases, are directly out of high school or out of college. The things that we're finding is that they are lacking the basic everyday skills to exist, the basic skills that may prohibit them from any type of job advancement. Those skills are, basic English and math, communications skills, both oral and written, and presentation skills. People do not know how to get up in front of a group whether it be a group such as this or even a group of two or three people to present their ideas. This is especially critical in the loan area. Your loan officers have to present to a senior loan committee their reasons why they feel that the bank should

give a loan to a potential customer. If that loan officer is unable to do that, usually the loan is not approved and a lot of times it's because of lack of basic presentation skills.

Other items that bankers are being trained in are Remedial Reading and Customer Relations skills. People don't know how to treat other people, don't know how to deal with an irate customer and since the banking industry is a service-oriented industry, that's important because every other bank offers the same type of product and so the way that you treat that customer is what makes those people continue to come back. Another item: [illegible] phone etiquette. We have several in-house courses on telephone etiquette that address the skills of properly answering the telephone, how do you properly hang up the telephone. Sounds real basic, but that's what's happening in the banks.

Number handling: we offer a course at American Institute of Banking that not only increases the skills and proper retention of numbers, but also teaches proper placement of numbers so that the reversal does not appear quite as often where people see a three and a nine and they reserve it as 93. The other thing that's very interesting is that people don't know how to balance a checkbook. We offer a basic course on how to balance a checkbook. You would think that a banker should know how to balance a checkbook but there's a lot that don't.

In addition to those basics, we also are beginning to see some specific things emerging for the manager; Productivity

Analysis, Quality Circle or Participative Management training. In addition to that we're trying to offer specific courses for our managers on understanding what computers can do. Managers may not necessarily be the ones that are working with it, but need to have an understanding of what a computer can do for that manager.

The banking industry seems in my opinion to be a slower industry to utilize computers to train people. Employees in banks are exposed to computers constantly through on-line teller machines, automated teller machines, electroni funds transfer, the loan analysis computerization, and processing of savings and checking deposits. This is beginning to change somewhat, however. We are starting to train the loan officers through computerization, giving them information on how to effectively analyze a customer for credit purposes and then also how to effectively analyze the loan once it's made to make sure that the loan doesn't go bad.

The other thing that they are specifically dealing on now is a program called Bank SIM, where an employee spends five days in training with the computer. They actually set up a bank and run it from a president's viewpoint. Each trainee is able to determine the profitability of that bank by making management decisions. That gives you an idea of the type of education currently available to bankers.

We have a wide variety of people applying at banks for

employment. It can range anywhere from entry level all the way up to a senior position in the bank. Most of the people that apply with us that have a bachelor's degree or a master's degree in education usually are placed on a management trainee program within the bank. Now, this becomes a competitive environment because the banks are limited in the number of participants on a management trainee program. Some banks, however, don't have a management training program. The management trainee program allows that person to spend between one and three years in the bank, observing different areas of the bank and then they get into some type of credit analysis and eventually they are placed in a position that allows them to advance through the bank in an officer position. So it's a career development, management development-type program. It also gives them that "experience" that always needed with education. If a bank does not have a management trainee program, however, then a person may start in a particular area of the bank at a entry-level position.

Whether or not they're a management trainee or starting out as a secretary, we still are seeing some basic things that are very similar to what was previously mentioned, things that are lacking in our potential employees; things that I feel should be learned at the high school and college level and sometimes even junior high. These are: communication skills; customer relations, telephone etiquette; personal

financial skills; interviewing skills and personal appearance skills. People do not know how to interview for a job or for a job interview. They don't know how to write a resume. They don't know how to complete the employment application. In addition, people aren't aware of what the word productivity means, what is it? What does it mean when they get into that business environment and the word productivity is coming up a lot nowadays. What does that mean? Also, an awareness to detail, an awareness to needs, a basic awareness to people; what is going on around you in your environment. Motivation skills, why do they work? Trying to instill a want to work versus a have to work to help the attitude on the job. And the final thing is common sense. To give you an example, we sent out a memo to of our banks on some changes in our classes and a person called me and asked me about the changes and I said, "Did you get the memo?" And she said, "Yes, but nobody told me to read it." Now, you know, how far do you go telling people what to do?

Those are some suggestions that I would make. To give you an idea of how I feel about the education system today, I have a 14-year-old son. He is in ninth grade this year and so I've been aware of some of the things that he's going through. One of my suggestions is to require attendance at specific skills training such as interviewing skills and personal appearance skills. In addition, if you cannot require a typing course or an adding machine course, then at least offer it to the student

for more than a quarter. My son's school district, for example, only offers it for one quarter. These types of skills are transfer skills that can be used in the computerization world today. If you have some type of typing skills and the computerization training isn't available, at least you can transfer a typing keyboard over to a CRT terminal. Other skills might be the basic business-type skills, anything that maybe will help your students move from one area to the other. You know, they can't just pop right out and have that particular career, but at least it's something that will help them get where they need to go. The need for secretaries right now in this city is extremely high. A good secretary is very hard to find.

The one thing that I would commend the school district on right now is the computerized learning centers that are available in the libraries. I'm seeing a strong responsibility instilled in the students, the responsibility among the student, among the teacher and among the parent. My son, for example, signs contracts each semester where he agrees to do one particular thing. He also helps to develop that contract, thus that becomes his responsibility to achieve that; participative management.

I would suggest also that we continue to work together. If any of you are interested, the American Bankers Association and the American Institute of Banking have a program available for schools. It's called PEP, Personal Economics Program. A banker goes into your classroom and teaches your students about

how to manage a checking account, different savings instruments that are available, careers in banking. There's a whole series that is available to you. If you need any more information on that I'd be happy to provide that for you. Thank you.

MS. CAMPBELL: Thank you very much. Wade?

MR. MURPHREE: Thank you, Madam Chairman, members of the Commission. I will attempt to get you back on schedule and keep my comments as brief as I possibly can and then give you an opportunity to ask some questions.

I's listed as Executive Director of the Denver Institute of Technology. I guess if that means that if anything goes wrong I'm responsible. That's probably true. I also happen to be the president of the institution. I serve as a member of the advisory committee to the Colorado Commission on Higher Education and am treasurer of the National Association of Trade and Technical Schools. I believe that I'll be speaking to you today from, perhaps a broader perspective than just a local situation and I hope that you will accept that.

I represent a part of education that I think is the most successful and certainly the most rapidly growing portion of education, and that is the private proprietary vocational and technical training programs in the country. We are growing at a rate of between 15 and 25 percent a year on a national level. Individual school growth appears to be, nationally at about 15 percent annually over the past several years.

There are, in essence, three different portions of education, if you would. First there is the tax consuming portion of education, public schools; the tax avoiding portion of education, private, non-profit schools; and us, who are tax paying, we hope, if we make a profit, and we are pleased to support the rest of education as we go along. We are different. There is no doubt about it. We are demanding of our students. We are demanding of our personnel. We are demanding of ourselves. We offer specific training designed to meet the needs of employers and to meet the needs of our students to go out and be successfully employed in the field. Our programs are all highly employment oriented, although many of our schools do offer certain general education subjects and liberal arts-type training, it usually comes secondary to the technical skills or the business skills that they need to go out and go to work. As a result you'll find that our programs are for the most part shorter than what you would find in the public school systems, and yet they are more intense. Our average student will spend six to seven hours a day in the training center rather than the traditional three or four hours a day that you would find in most public schools.

We do rely a great deal on the advisory committees that have been alluded to in earlier testimony and have very active involvement with people in the business community and with the employers that are going to be employing our graduates. I was

pleased to hear some of the comments regarding Storage Tech because I know we have a number of our electronics technician graduates work for that company as well as a couple of individuals from that company that serve on our advisory committees. We try to coordinate as well as possible with employers regarding their specific needs. However, I believe that an educational institution has a responsibility primarily to the student to do more than just teach them a single job for a single employer. I believe that we must provide that individual with upward mobility, we must provide them with a broader base of education than their technical training areas that enable them to move from Employer X to Employer Y if necessary, and to give them a certain amount of mobility in their career. That may not always meet the needs of a specific employer. Those needs will always, in my opinion, have to be met by the specific employer. I believe that education should provide a competent technician in the technical areas, a competent individual that can go out and enter into the job market and successfully do the majority of that job. Specific skills should be the responsibility of the employer that wants those specific skills for their company.

We've heard a great deal today aobut the difficulty that I guess all of post-secondary education is having with the students coming out of high school. I will not repeat them. I will simply share the same comments that we, too, would like to

have someone learn how to read, write, add and subtract. It would help a great deal. We must deal with the problem, however, and we have instituted remedial programs for all students that do not meet certain standards set up in our schools. They are not optional. They are required just as attendance is required at our school.

It may seem unique to you that we as a private school have students paying us tuition and thus they should have, perhaps, some flexibility in when they attend class, but factually we are just the opposite. If the students do not attend class in our schools, candidly, they will not remain as students in our schools.

That then gets us to an issue of how successful are we in training. Nationwide, the schools that are represented by the National Association of Trade and Technical Schools have in excess of a 70 percent completion rate of individuals who enter their programs. I'm much more able to speak regarding my own institution. For the last five years we have maintained in excess of 80 percentile completion rates of all students who enter our programs regardless of whether they're short term programs at the 6-9-12 month level, or associate degree programs through the 18 months that they would be attending school. They also happen to be skilled when they leave our institution.

Denver Institute of Techology is maintaining a 97 point percentile plus placement rate of traduates within three months

of graduation.. We're proud of that. We do exclude from that statistic those individuals that we do not consider available for employment, those who are ill, those that have gone on to higher education beyond our institution, those that for some reason may decide to take a vacation after they get out of school, whatever it might be. But if they are actively seeking or desire employment, they are included in our statistics.

We also heard some information about curriculum needs of the future. I will submit to you that Denver Institute of Technology's catalogue will never be current. Our curriculum changes literally monthly. Our lesson plans change monthly; if not monthly, quarterly. I would be sadly disappointed in our faculty and our staff if that were not taking place. If a student looks at our catalogue today and enrolls for programs to start this coming September, as many high school seniors do, I can almost assure that individual that there will be major changes in what we are teaching at the time that they enter school, much less the time they may get to that portion of the program. This is needed. I think technical education must start moving more rapidly with the time. Certainly things are happening rapidly enough today. We have to move along with them just as rapidly or our students and our graduates will not meet the needs of the employment community.

I guess I do have some suggestions and by the way, I would also like to point out that there are over a million

students attending private vocational trade and technical schools nationwide. In fact, it appears that there are more students in private vocational schools than there are in public education, a very interesting statistic, one that I was unaware of until just a few weeks ago. I think that one of the items that is critical when we talk about reduced funding for higher education or for education as a whole is that we must then, if we recognize that the vast majority of vocational education needs are being met in the private sector, then we must make sure that any future planning provides access to students to attend a school of their choice. I know of no other way to do this than through financial aid programs based on need and based on merit that will enable those students to get the education that they need.

Secondly, I think--I'm not going to repeat a lot of statistics because I know this commission is aware of them. Over 80 percent of the jobs during the next decade are going to require less than a four-year college degree. I think that it's perhaps time that we look at the money we're spending in education, and I would even put forth that maybe we need to look at a total restructuring of the way that we are teaching people in our colleges today. I don't know that there's anything particularly sacred that when a student first enters higher education that they must study English, algebra, history, the liberal arts subjects when in fact we know that less than 50 percent of those students who enter a four-year college complete their training.

Most of those students drop out. Over half of the group that drops out drops out in the first year, first two years of their education. At that point in time, an individual going through the process that we maintain today in higher education is flatly going to be unemployable. I don't know of very many jobs in the high technology area that are going to allow someone to go into anything at an employability level with strictly liberal arts education. We might even consider teaching them how to earn a living first and then teaching liberal arts and general education second. It would undoubtedly cause major disruption to the educational community. I think you will find that the majority of our faculty and professors are in the liberal arts area because that's where amajority of the students are in their first two years of college. It would then mean that our colleges would have to gear up with a larger percentage of their faculty and resources dedicated toward training people for employment.

I don't believe that young people today and their families, or the government or anyone else can afford to continually send people thorugh colleges and have them come out and be unemployable at the end of that time. I would also recommend that pay scales and funding schedules be brought about that do not simply benefit a college or the faculty for being there and having students there. I would recommend that they be directed toward the success of the students while they're in school and toward the success of the graduates when they complete

their training.

In my view, our students today in general education, they need their liberal arts. I'm a strong supporter of it. On the other hand, in my view people can no longer support the concept of two or three years of college, coming out and having nothing. Let's take a strong look at a total restructuring, a total difference in motivation, if you would. We talked about motivation earlier of students. That same motivation should be brought about to faculty staff and administrators in college and yes, we too, have motivation problems with our students. There is no doubt about it. We also, however, address that problem with special classes and seminars and work with our faculty in an attempt to motivate those individuals not just to be attending school, but to look forward to the day that they graduate, go out into the marketplace and start being a productive member of our society.

MS. CAMPBELL: Thank you very much. We have time for two questions from the panel. Are there questions that you would like to ask? Arly?

MR. FOSTER: Thank you very much. I think I missed how widespread the membership is in the National Association of Trade and Technical Schools.

MR. MURPHREE: There are over 500 members nationwide.

MR. FOSTER: 500 schools nationwide? And it's growing, you say?

you say?

MR. MURPHREE: Yes, it is. At about 15 percent a year.

GOVERNOR QUIE: Just one question. Have you been able to tell the difference between those who come right from high school before they go for two years of college and learn some English and history and so forth, over and against the ones who learn their English and history and so forth first?

MR. MURPHREE: We certainly have a difference in those that have had some college in their language skills and ability to communicate, and their ability to read. There is no doubt about it. Fully 25 percent of our student body, and we are a two-year associate degree technical school, fully 25 percent plus of our student body are four-year college graduates, not just those that have gone for two years. In essence, we are a two-year college. Our training, however, is structured that they get their technical education in the first portion of their curriculum. Thus they are employable if some emergency comes along and they have to drop out at the end of 9 or 12 months. They then continue to get their general education in liberal arts along with higher level technology in the second year of their education. We do not have the traditional school break between years, by the way, they go straight through.

GOVERNOR QUIE: So what you're saying is that if they receive their liberal arts first, they're really better students. However, if they left it to you, you would give them technical

training first?

MR. MURPHREE: Not necessarily, no. Not necessarily.

GOVERNOR QUIE: Not necessarily.

MR. MURPHREE: We have students that come out of high school that are better students than those who have two years of college because someone along the line forced them to read and write. I would suggest to you that the skills that we need for our type of training should be achieved at the high school level.

MR. FRANCIS: My comment really follows the Governor's comments. I think I disagree with you, not I think, I know I disagree with you with respect to what the role of colleges and universities are, but I think we may be together on where the issue is. I think the issue is more of guidance and counseling with respect to what choice a student makes regarding where he or she decides to pursue a career. With respect to your own institution, I think your statistics are overwhelmingly to the degree that those students have chosen to pursue the technical career approach and your institution does that very, very well. However, our colleges and universities are not educating, and I use the word educating, not training, young people simply for a job, but for a life as well as a job. So, we will have a broader approach. I think when you say that they drop out, that may be for a combination of reasons but we cannot reorder our approach to their education because some might drop out. Where I disagree with you is I think the approach we take

has to be based on the general, average student. There'll be people on a continuum, some who will succeed in spite of college, some who will drop out, but the majority will succeed because of what we do. I just want to say for the record because I am not sure the Commission will get that far into it, but I think what we have heard over and over again is that if you talk about study and the work force, we need those young people who can do the job as you have described it. However, we also need people who know how to live, who appreciate other workers; i.e., have good interpersonal relationship skills, who have an appreciation of history, who are creative, et cetera. I would submit to you that for those who choose a postsecondary four-year college, that combination of a liberal arts tradition with some brief professional introductions with the hope that one will go on to graduate and professional school may still be the best answer to the total perspective.

MR. MURPHREE: I would agree with you, by the way. It's very difficult to put forth an entire program in some ten minutes.

MR. FRANCIS: I understand that.

MR. MURPHREE: And I agree with your perspective as well.

MR. FRANCIS: I just didn't wnat the record to be void of that statement.

MS. CAMPBELL: Emeral?

MR. CROSBY: May I just ask a general question? We don't generally get a chance to talk, well, we get a chance to talk to parents but we don't get a chance to just focus in. You mentioned, Mrs. Smith, about your youngster wanting to take more typing and was limited in doing so. The school system is constantly being asked to teach a number of courses, as you also mentioned, personal dress and so forth. We have a lot of personal health, personal affectation classes being added. But this is a sideline. There was also mentioned this morning the extension of the school day, the school week, and the school year. If we teach those additional courses, what are your feeling about having your ninth grader spend seven or eight hours a day in school and eleven months in school to make sure that all of these things are taught? See, when we talk to kids they want to get out soon. They want to get out at 12 o'clock. They want to get out at 1, and they want to get out in April and start in August.

MS. SMITH: Well, from a mother's viewpoint, it would keep him busy during the summer months. You know, I realize that you have them for nine months and we have three months. If you did a poll and found out what your students do during that three-month period I think you would find that they might have some time for an additional two hours of school that would help keep them busy. Because their creativity seems to have gone out the window, they have a hard time trying to entertain themselves.

It seems like they always have to be entertained. I would not be opposed to increasing the length of the school day. My son gets out at 2:30 right now, and by increasing that time to 3:30, and giving him that option for another class, he would be able to attain additional knowledge.

Now their learning, attention span might drop somewhat. Well, offer the class three days a week from 2:30 to 3:30 or twice a week. I realize that you have a lot of people saying my student needs this, my son needs this, my child needs this and you should be offering all of these types of things and I understand the limitations that you have both in time, funds and staffing. My suggestion would be, though, that if you're hearing a lot of the same things that you heard from the three of us today on basic math and basic reading and basic interpersonal skills, that that might be the one thing you might want to concentrate on.

MS. SORRENTO: I would like to add to that, if I may. I think some of the things, like the dress, for example, does not need to be a course. Some of those can be done over a lunch hour or at some "mini" kinds of things. We even do that in the company. We have lunch-type activities available where people can learn about effective communications and whatnot so they don't necessarily have to be lengthy to get the point across.

MR. CROSBY: Your mentioning that, we are frequently asked to be able to teach them how to sit down and to eat, what

fork, what spoon and so forth. It looks as though we're doing everything. Okay, but I just wanted to get your feelings on how parents would feel if we did go to a different kind of structure.

MS. CAMPBELL: Thank you very much. We appreciate that. We are adjourned until 1 o'clock or very shortly thereafter.

(Whereupon, a lunch recess was taken.)

L U N C H E O N R E C E S S

MR. WORTHINGTON: Before embarking on my subject, Vocational Education and Excellence for the 1980s: Challenges, Responses and Issues, I wish to express my sincere pleasure at begin given the opportunity to address Secretary Bell's National Commission on Excellence in Education. All of us in the education department have high hopes concerning what you will produce.

When Anne Campbell asked me to make this presentation, she mentioned the topic as being "education and work." On the assumption that you will be hearing from others on this broad subject, I decided to narrow it--for myself--to those programs and activities with which we deal in the Office of Vocational and Adult Education. Otherwise, I do not think it possible to avoid both long-standing philosophical issues (which will always have committed proponents on both sides, and which will probably never be resolved) and excursions into the realm of so-called "manpower policy." By this, I mean the various schemes for planning, funding and operating the education and work relationship, on a national basis, as is occurring in West Germany and Japan, for example.

In a high pluralistic and competitive society such as ours, I doubt seriously whether any such gradiose approach could ever be negotiated, let alone practicable. I would far prefer to spend my time on the instructional programs, themselves,

and on practical ways in which to improve them. In this, I agree completely with Jim Harvey of your staff, who was recently quoted as saying that, "The (Commission's) report will be short on theory. The Commission is looking for practical leverage points." My purpose, in this address, is to suggest that some of these points might be; but also, to discuss some of the complexities we face in arriving at them, in the multi-faceted, multi-institutional world of modern vocational education. I wish I could say some magic words to make this task simple, but I epxect to achieve exactly the opposite. However, when I finish, you at least will have a better grasp of the difficult problems that vocational administrators face--at every level--in trying to decide where and how to strive for "excellence" in their programs.

My first task is to place my chosen focus for both vocational education and excellence in context. With regard to both terms, I must sacrifice scope and some very interesting historical lineage in return for specificity. At least as far as vocational education is concerned, the background paper on "Education and Work" that I am distributing to you may fill some of these gaps.

Vocational education--defined as being a series of organized experiences calculated to prepare an individual for either paid or unpaid employment in some recognized occupation--is but one avenue for "human resource development," as is

education itslef. If we were concerned with all aspects of "human resource development," we would have to include not only purely training programs such as those conducted by industry, but also the use of libraries, the educative effects of community action groups, and the indirect impact of health and welfare programs, among other factors; and, of course, we would be looking at the total spectrum of formal education, from kindergarten through the post-doctoral level.

In contrast, the vocational education of which I speak, today, begins with pre-vocational industrial arts and with consumer and homemaking education at about the sixth grade; and ends short of the baccalaureate degree, with the exception of preparing vocational teachers, counselors, researchers, and administrators. It is important to note, however, that federal, state, and local monies, under the current Vocational Education Act, can be expended on guidance and counseling for vocational education, at all levels. But, it is equally important to note that vocational education has no responsibility for subject matter in the crucially important lower grades--for example, the amount and kind of mathematics and science that is taught--nor is vocational education a mandatory part of any curriculum, either from the student's or the school system's point of view.

It may also help to orient you to know that the total expenditure on public vocational education, alone, is about

$6.5 billion per year, compared to $10 billion spent by the military services on education and training, and roughly $35 billion by private business and industry. Of course, much of the military training budget is spent on strictly military "occupations," while much of the private sector budget involves advanced training for executives. My point is that vocational education is a most significant vehicle for preparing the nation's skilled workers and technicians, as well as for offering an alternative kind of education for approximately one-third of its secondary students.

I would like to turn briefly to the question of excellence. In the broadest sense, there are probably as many definitions or "notions" of excellence as there are philosophies of education, each of these being mediated by cultural norms and beliefs--or, might I add, by prejudices. For example, we still occasionally encounter--even today-- the old Victorian attitude that nothing that involves getting one's hands dirty deserves to be called "education." I don't think we need to address such prejudices concerning excellence, as they have been thoroughly discredited by educational thinkers from Horace Mann, Through Dewey, Prosser and Conant, to John Gardner. Furthermore, arguing generalities or philosophies will likely prove of little help in pinpointing real deficiencies and suggesting practical solutions. We must turn to the matter of measurement; for, as the Harvard physicist Percy Bridgement once said, if you can't measure a

thing, you can't define it!

There would seem to be four kinds of measures that most persons currently like to use in evaluating vocational education: components and process; occupational impact; equity; and, individual student development. Each of these carries a set of criteria, based on specialized research, and accumulated over the years. For example, "components and process" criteria would include assessments of teacher qualifications, adequacy of shop facilities and equipment, and currency of curriculum materials, together with the degree to which proven instructional devices such as the "project method" are being used.

"Occupational impact" criteria would include placement rates, pay rates, and employer evaluations, among others--in other words, the type of analysis largely favored by the labor economists for whom vocational education seems to have developed a special fascination, over the past decade.

"Equity" criteria are of more recent origin and have been generated by the same civil rights movement that led to four major pieces of federal legislation. It is more difficult to cite specific measures, in this case, except to say that--for a significant number of persons and now "track" the vocational education enterprise, no program could be termed "excellent" that does not have some predetermined percentage of women, minorities, or handicapped (as the case may be). Admittedly, these criteria are more often applied to entire systems than to

individual programs, although even federal judges have made exceptions to this rule.

"Individual student development" criteria--reflecting the "whole person" concept of education--include such non-occupational measures as frequency of voting, involvement in community affairs, and criminal record, among many others. This group of criteria reminds us that, while vocational education plays an important role in purely skill training and retraining, it is also securely lodged within the overall educational enterprise--particularly where secondary day-school students are concerned.

While it is not central to my discussion, I should point out that--in none of these measures--are we talking about the simple kind of precision that characterizes those in the physical sciences (for example, the x-raying of metal to determine fatigue points). In a very recent article in the American Vocational Journal, Dr. Charles Benson of the University of California at Berkeley touches on some of these measurement problems. Regarding "occupational impact criteria", for instance, he notes that, "If we wish to measure quality in terms of students' completions and placements, we must recognize that these data are very imperfectly reported. The same is true of data on employers' opinions of quality of training received by vocational graduates. Even if those kinds of data were widely available, it would be necessary to control for characteristics

of entering students and for the state of the local labor market. Thus, the exercise is a reasonably complicated one."

Extending Professor Benson's comments, I would maintain that all of the criteria I have just suggested for measuring excellence present similar complications. Next, I would like to examine briefly the nature of the enterprise to which we must apply these measures--vocational education.

Many discussions of vocational education (particularly those concerning its effectiveness) seem to treat it as a single, homogeneous program. It is hardly that; instead, it is many programs with widely differing purposes ranging from the career guidance or orientation function of pre-vocational industrial arts, and the family-consumer focus of consumer and homemaking education, through the exploration and clustered skills preparation in the high school, to the high-skills training and education at the post secondary level. It also contains special education for the physically handicapped, basic education for limited English-proficient adults, and pre-engineering education for technicians, among other specialized offerings--clearly, an impressively broad spectrum of endeavors. Its program support mechanisms similarly cover a wide span, from outreach efforts aimed at women re-entering the labor market in non-traditional occupations, through the highly successful student organizations such as the Future Farmers of America, to higher education institutions for training vocational teachers,

counselors, and administrators.

Further, vocational education is offered in an almost bewildering array of institutions, each type with its own approach structure, funding mechanisms, legal powers, and other characteristics. According to our latest data, this array includes: 15,729 public comprehensive or vocational high schools; 1,395 public area vocational centers; 586 private secondary schools; 812 public noncollegiate post-secondary institutions; 6,813 private noncollegiate post-secondary institutions; 1,135 two-year institutions of higher education (such as community colleges and technical institutes); 647 four-year institutions of higher education (which offer less than baccalaureate programs); 553 state correctional facilities; and, 83 correspondence schools.

Now, I have risked confusing you with this mass of facts only to impress on you that the target of our "excellence measures" is perhaps even more complex than the measures themselves. Having recognized this, we are faced with a further problem; namely, that some of these measures are more pertinent for some varieties of vocational education than for others. For example, while "occupational impact", usually measured by placement rates, is relevant for those secondary vocational students who are completely sure how they are going to be employed and who definitely are not going on to higher education, it is amost a non-relevant measure for assessing the worth of what we call

useful consumer and homemaking education programs, as opposed to the "gainful" variety. On the other hand, such a measure would seem to be critically important in post-secondary technical education, where highly motivated and able students enroll to gain the skills and knowledges that are very specific to their chosen field.

Turning to the "component/process" kind of criteria, specifically, the matter of up-to-date equipment, I would judge this to be more important in post-secondary technical education (for the same reasons) than I would for secondary-level "occupational cluster" kinds of programs where process is perhaps more important. Regarding "equity' criteria, it would seem obvious that this kind of measure would be far more pertinent for secondary day-school programs, where school attendance is mandatory, than it would be for retraining the unemployed in a particular industry, in which case the student population is already determined by circumstances.

In all of these cases, the way measures of excellence are applied must, either objectively or subjectively, involve weighting. Unfortunately, there is no general agreement on how this weighting is to be done; and this kind of decision is mostly made on other grounds, including political ones. Now, this situation poses severe problems for administrators trying to decide where program improvement efforts should be directed, and for external evaluators who attempt to assess the "worth" of

vocational education programs, just as it will for you, in making your recommendations, next spring. Using a single criterion for many different kinds of vocational programs "lumped together" or using an inappropriate criterion for a single program can result in misleading claims as to program quality, or to ineffectual corrective actions aimed at achieving excellence.

So far, in my discussion, I have treated the various possible measures of excellence without regard to the time factor, as though, once we had developed a valid measure, it would remain so, for an extended period. This may have been true, years ago, but not now. Each one of us knows programs that, by consensus, were judged excellent a decade ago, but are now obviously out of date and a waste of everyone's time and money. They simply have not adapted to change, change in the populations to be served, change in the needs of business and industry for skilled workers, and change in the nation's worldwide requirements.

For example, vocational educators still proudly recall their excellent efforts in training 7,500,000 skilled workers for defense industries and the military, during World War II. As recently as five years ago, this focus on defense preparedness would not, in and of itself, have given a program any special claim to excellence. However, world tensions have again increased, the public's mood has changed, and a new administration now makes our military strength its highest priority.

Obviously, unless vocational education shifts its priorities to meet this challenge, as it has been doing, any claim to excellence would have a hollow ring, indeed.

What, then, are the "dimensions of change" to which vocational education must adapt, that in themselves alter the meaning of excellence? I find it convenient to group them into three categories: technological; economic, and demographic.

Under technological change, we are experiencing a startling acceleration in the modification of old technologies, as well as the introduction of completely new ones. Terms such as "micro-minaturization", "robotics", "fiber optics", "bio-engineering", and "laser communications" are becoming part of our language, if not yet household words. Still more changes will come as expected increases in private-sector investment in research and development occur. What this means is that the correspondence rate at which skills in many fields become obsolete is also increasing. Therefore, we must devote our attention not only to preparing new workers at higher skill levels, but also to retraining hundreds of thousands of experienced workers who face structural unemployment.

Under economic change, we have the problems of overall low productivity; deteriorating competitive position in many manufacturing industries such as steel, shipbuilding, and production electronics; aging and inefficient plants; an abnormally high real interest rate; and residual inflation. A

recent article in U.S. News and World Report (September 13, 1982) maintains that the nation's industry has lost a million jobs that will never come back, in such major "blue collar" fields as automobile manufacture and garment making. Once again, technological change is an important factor in this economic change. For example, the article cites a recent study by Carnegie-Mellon University which predicts that, "By the year 2000, robots will supplant three million factory workers and, by 2025, could be handling all manufacturing chores." The article goes on to say that many middle-aged, skilled, but unemployed workers are having severe problems finding new jobs and are increasingly seeking retraining as the answer. This has distinct implications for vocational education; but it is gratifying to note that the article goes on to state that "Public schools in many communities are reviewing course offerings in order to prepare students for available jobs . . . New Hampshire, for example, has opened twelve new vocational high schools over the past decade and plans to open seven more in the next four years, all geared to providing workers for the electronics and other growth industries." Clearly, addressing the needs of the economy has become an almost paramount factor in achieving excellence in vocational education, for the foreseeable future. However, translating this generality into operational plans raises a planning problem that I will discuss in my concluding remarks.

Under demographic change, we have the overall aging of the nation's work force; a projected decrease in the percentage of the work force composed of youth (but an increase within that age bracket of minorities); an outmigration of skilled workers from the "frost belt" to the "sun belt"; a tendency for adults to remain in the work force longer and to opt for later retirement; a continued influx of women into the work force, particularly into non-traditional occupations; an increasingly mobile work force; and, a continuing concentration of poor, unskilled or low skilled workers in densely opoulated urban areas. Recent data also indicate that, relatively speaking, the rural poor are in even more difficult straits than a decade ago. Here again, there are strong implications for vocational education during the 1980s. For example, while youth unemployment still constitutes a severe problem, it may well be automatically eased as the supply of new labor dwindles. This, however, will not change the fact that we will still be short of workers with the right kinds of skills. For this reason, I would no longer term a program "excellent" regardless of its other merits, unless its administrators were now beginning to search for ways to devote a significant portion of its resources to adult retraining. For the same reason, although there are other reasons in the "equity" arena, I would no longer judge a program to be economically realistic, let alone "excellent", if it did not make every effort to serve women, minorities, and the handicapped.

All of these changes must be accommodated by vocational education if it is to achieve "excellence", which, as part of its definition, must include the notion of "relevance."

Now that I have spent considerable time analyzing the concept of "excellence" and its interaction with the field of vocational education, and have spent still more time in relating "excellence" to various kinds of changes that are occurring in the "outside world" I would expect you to ask how we are using these insights. What have we concluded about which program improvements are needed; and, have we developed any systematic way of reaching such decisions?

Let me reply to the second part of that question, first. We simply do not have any such system for decision making in program improvement. What we do derives from considerable experience in our field, from constant discussion among the various levels, from pressures exerted by an ever expanding number of special interest organizations, and, as one would expect, from directions supplied by our administrations, whether federal, state or local. As much as possible, we do use the logical concepts I presented for your consideration earlier in this address, but I would be the first to admit that they have grown empirically out of long expreience. They would surely come under the heading of "wisdom of the marketplace", but fall short of anything that might be termed "scientitic management."

With this not inconsequential "caveat", let me list a

few of our conclusions concerning where vocational education's program improvement efforts might best be concentrated:

-Identification and dissemination of existing exemplary curriculum materials;

-Improving teacher recruitment, training and retention at the secondary level, particularly in vocational agriculture and industrial arts;

-Expanding sex equity efforts and attempting to achieve more effective services for special needs populations;

-Devising more cost-effective methods for acquiring very expensive, high-technology equipment for the post-secondary level;

-Achieving better articulation among the various levels and types of vocational education institutions, and with other kinds of education and training;

-Improving the relevance of occupationally specific programs by more closely invovling the private sector in their planning, operation and evaluation, especially by increasing the use of cooperative education;

-Placing added emphasis on the retraining of adults for careers that offer secure employment in the future;

-Finding and employing more effective means for improving programs in both urban centers and in sparsely populated rural areas;

-Focusing existing resources more intensively on

national needs such as defense preparedness and domestic energy production; and,

-Incorporating enterpreneurship education into all vocational education programs.

The total vocational education enterprise, federal, state and local, is responding to these challenges; however, there are several aspects of this response that deserve your attention.

First, these priorities were not invented at, or dictated to the field from the federal level. In almost all matters, local administrators sense these kinds of new demands, and begin to respond to them, more quickly than either state or federal staffs; and, in this administration's view, this is as it should be. Once we, in the Office of Vocational and Adult Education, sense these local and state initiatives, we can provide the kinds of leadership that offers supportive research, coordination, and various kinds of technical assistance. With the exception of some recent excursions into over enthusiastic compliance monitoring, this kind of role is nothing new for federal vocational education officials. Therefore, we are very comfortable with the functions projected for us under Secretary Bell's Foundation Initiative.

Second, we do have some problems in the area of data gathering. As you know, we are attempting to reduce administrative burdens on states and localities. One of the

most promising reforms involves controlling excessive paperwork. However, I will admit that it is difficult to provide effective coordination, let alone assign limited discretionary funds in an intelligent manner, unless we know quite a bit about the programs we are trying to help, especially where they need this help. To give you a current example, the Department of Education and the Department of Defense are about to offer a joint seminar on vocational education and defense preparedness. Most of this seminar will be devoted to presenting exemplary projects in various kinds of training that are relevant to the nation's defense effort. We assumed that, although we had only anecdotal information, someone else would be able to provide a more comprehensive listing of these programs. This was not the case. Even the state directors of vocational education, hard pressed to fulfill federal compliance requirements and losing staff at an alarming rate, often had but a sketchy knowledge of new program initiatives being generated in their own states. I am quite sure that we will encounter the same problem in any of the priority areas I have just listed. Consequently, there is the ever present danger of "rediscovering the wheel" in vocational education.

Third, the states are undergoing budget cuts (for the same reasons we, at the federal level, need to reduce our expenditures) and will undoubtedly give program maintenance a higher priority than program improvement. Even now, states spend

a very small amount of their own funds for these purposes. We are getting to the point where states such as Michigan and Ohio are about to discontinue their support of higher education programs that train vocational education personnel, including teachers. Since there cannot be any new federal funding for these purposes, vocational education must turn to new resources. This clearly means combining public resources with those of the private sector, as well as more creative use of volunteer help (for example, from retired teachers, tradesmen, and executives). One of our prime initiatives, in my assistant secretaryship, has been the creation of a "private sector task force" commissioned to achieve exactly these goals.

Fourth, because of our lack of knowledge about program specifics in the field, and partly because of our uncertainty regarding how to construct the matrix of "excellence" measures versus specific vocational programs, to which I alluded earlier in this address, our Office of Vocational and Adult Education has found it more useful to concentrate on responses to some of the national needs and broad areas of change that I have mentioned. While I do not think you should concentrate especially on vocational education at the federal level, you should be aware of some things we are doing, before you make your recommendations. Let me list some of our initiatives and other efforts. They include:

-Task forces in defense preparedness, high technology,

and entrepreneurship, in addition to the one on the private sector that I have already described;

-A contract with a private firm to determine the specific implications of new technology for vocational programs;

-A contract with the National Academy of Sciences to investigate ways in which vocational education can assist with both inner-city and rural problems;

-Support of "standards of excellence" projects conducted by practitioners in the field; one of which, in industrial arts, has been completed and is being put to wide use;

-Recent completion and on-going dissemination of a project focusing on practical methods for achieving industry-education-labor colloboration;

-Improving an existing system for converting military curricula for vocational education's use, and supporting the dissemination of these materials; and

-Continuing support for six regional curriculum coordination centers.

I would next like to share with you what we perceive to be underlying problems or issues that, over the long run, will greatly affect the extent to which all concenred can enhance the excellence of vocational programs. We are already conducting serious discussions with state and local leaders on these matters; and will, of course, appreciate whatever suggestions you may give us. These are the questions we are pondering,

together with a few explanatory comments:

- How can we evaluate our programs in sufficient scope and depth so as to really know where their strengths and weaknesses lie? This is actually a two-fold problem: first, it involves research, unperformed to date, on how to achieve the weighting of "excellence measures" for the many different vocational programs (as we have already mentioned): second, given the reality that we have not done a comprehensive job of evaluation when we had amost unlimited funds, how can we do the same job more efficiently with less money?

- How can systematic decisions be made, on any level, regarding which kind of excellence should take precedence over others, when two or more programs are being considered? Even given the possibility that we can correctly identify all needed program improvement actions for all programs, it will be financially impossible to address of of these, simultaneously. How, then, do we rationally choose between two valid choices such as, let us say, developing more effective cooperative programs for adults at the post-secondary level versus improving vocational guidance at the secondary level?

- What should be the respective roles of the federal, state and local agencies in program improvement? There are many different "actors" on the stage of program improvement, including specialized federal staff, state research coordinating units, local curriculum development groups (in the larger

districts), regional curriculum coordination centers, the National Center for Research in Vocational Education at the Ohio State University, other university centers focusing on vocational education, and of course, many private firms. Taken together, all of this operates at what is probably a low level of efficiency. Given what has to be accomplished, and the limited resources for this task, how can these elements be organized or used so as to operate as a coherent system? For example, should the Office of Vocational Education merely "stock the shelves" with research products, leaving any comprehensive "use strategy" strictly to the states; or, should discretionary programs be planned jointly by the federal, state and local staffs in a more targeted fashion? If so, how can we accomplish this while preserving state prerogatives? And, finally,

- How can we obtain more accurate and usable manpower demand data for the planning of specific instructional programs for the future? You will recall that, earlier in this address, I cited a magazine article that painted a very gloomy picture for blue-collar employment, and by implication, a similarly gloomy picture for the future of trade and industrial education, a major segment of the vocational education enterprise. First, I might point out that although I have no doubt about the massive impact of new technologies, vocational education has been "burned" before, regarding the rate at which new kinds of jobs will become available. I am recalling projections made by qualified manpower

economists in the mid-sixties concerning the imminent increase in demand for new kinds of health technicians, for oceanographic technicians, and the like. Some of this demand has occurred, but not nearly as quickly or as overwhelmingly as some predicted. I also seem to recall that this same magazine has recently featured articles on the coming explosion of demand for housing, as well as the need to spend hundreds of billions of dollars to restore our nation's infrastructure, its roads, bridges and sewer systems, for example. These predictions give us a completely different picture of the need for workers in the construction and metal working trades, among many others. How are vocational educators to make sense of these alternate futures? Installing new programs and deleting old ones represent a major, long-term financial investment. Are there ways of developing more reliable projections; or, might threre be some new and creative ways for circumventing this problem?

Before I close, I believe that there is one more question that must be asked and answered, "What difference does it make whether this nation's vocational education programs are excellent or not? If I had the time, I could probably make a fairly convincing case (for a non-economist) that quality vocational programs would contribute to a more skilled work force which in turn would aid in increasing productivity and reducing unemployment and inflation. Or, if I chose a values-oriented argument, I could expand on the statement made by the Heritage

Foundation in its Mandate for Leadership, that, "The pending reauthorization of the Vocational Education Act represents still another opportunity to stress traditional values (employment, job preparation, productivity, et cetera) . . . " to this list, I would certainly add the reinforcement of family values.

But I think that my most effective response will be to tell you about three programs, currently in full operation, and let you judge for yourselves whether or not excellence in vocational education makes any difference, to communities, to states and to the nation.

- The State Technical Institute at Memphis, Tennessee, is in the third year of a $13 million contract to train active-duty aviation technicians for the United States Navy. In 1981, this program trained 15,000 in the fundamentals of aviation mechanics, 9,000 in basic electricity and electronics, nearly 1,700 aircraft technicians, 1,135 jet test mechanics, and 850 air traffic controllers. It has been repeatedly commended by high level Navy training officials.

- Over the past 15 years, South Carolina has built a completely new system of vocational schools and technical colleges. During this period, the state has attracted hundreds of new industries, many of them from Europe. The vocational/technical system has been widely credited, within South Carolina, for much of this growth.

- The Illinois State Board of Education in a consortium

with the Illinois State Chamber of Commerce, the Illinois Department of Commerce and Community Affairs, local educational agencies, community groups, and employers, offers customized training under its high impact training services program. Based on the Chamber of Commerce's own analysis, the investment of $740,385 to train and employ 1,159 persons, during 1981, has returned close to $57 million to the state and involved communities, in personal income, various taxes and retail sales.

I believe these examples strongly suggest what the answer must be to the final question that I posed. Our efforts to achieve excellence in vocational education can be worthwhile, and the "payoffs" will be significant, not the least of which will be realized by the students, themselves, as they gain the skills that make possible a productive, satisfying life.

The path we must follow will be difficult and is strewn with the kind of testing problems that I have discussed with you, today. However, with the aid of groups such as yours, but especially with the active cooperation of the private sector, I am confident that we will succeed.

I am sure that I speak for all vocational educators in saying that I, personally, welcome the challenge.

Thank you.

AFTERNOON SESSION (1:10 PM)

MS. CAMPBELL: I'm wondering if we might get started. It is our pleasure to talk about the Employability of Secondary-Age Youth. We have a fine panel of presenters. We have about an hour and a half for this particular session and we hope that, unfortuantely for us, you will keep your complete remarks brief so that we'll have an opportunity to question you.

I'd like to introduce all of the panel and then they will proceed by the way they're listed on the program. Calvin Frazier is the Commissioner of Education in Colorado. He is a colleague of mine and president-elect of Capital T State School Officers.

Robert Taylor is Executive Director of the National Center for Research in Vocational Education at Ohio State. We're delighted to have you here. John Peper is the Superintendent of Schools in Jefferson County, Colorado, one of the largest school systems in the country. Mike MacDowell is the president of the Joint Council on Economic Education in New York. It's my pleasure to work with him in that joint council. Larry Brown is president of 70001, Incorporated, from Washington, D. C. We are pleased to have all of you. Cal, we'll let you begin.

MR. FRAZIER: Thank you. On behalf of the state of Colorado, too, I'd like to express our appreciation for the group coming to Denver and we hope your stay is productive. Secondly, I would like to say that I'm very pleased to have an opportunity

to make these comments and let me just tell you briefly what the paper that I've presented seeks to do.

Number one, I tried to look at the charter for this Commission and the charge given to it. From this beginning I have outlined some of the reactions on behalf of the state of Colorado, and to an extent some comments that I think would be reflective of 49 other states. Secondly, some specific questions were sent me for comment and I have tried to react to those inquiries. Lastly, I provided seven recommendations to the Commission and I'll try probably to focus more on those recommendations this afternoon in the time I have than the foregoing part.

First of all, two or three points very quickly under the charge of the Commission itself. I've included in my paper some comments in regard to Colorado education. They basically indicate that we, as best we can tell, have been going up in our test scores and are back now to levels that were true in 1971 and before in terms of English and sciences. In terms of math and history and social studies, our scores are back to levels of about 1973-1974.. I'd like to make that point because I think so much has been made of some national test trends that I would hope that as you travel around the country, that you'll realize that there are a number of states, and I appreciate the Secretary of Education's comment in the paper this morning, that have turned a corner on this and that the public ought to recognize that fact.

I think in our meetings with some one thousand board members here in Colorado and 181 superintendents, over the last six or seven years we've made a major effort to turn those test scores around and our records frankly would show that this has been accomplished. It's been accomplished with the support of parents and also a legislature that has been very helpful.

We also try to monitor the attitudes of students toward public education and their high school programs, and again the results in our 1981 survey would indicate that they are higher now and more favorable toward high school programs than they were five years ago. So again, we're looking at how kids feel about education as well as whether or not they're achieving.

Lastly, to indicate that there are a lot of other groups working on the same charge almost that you are. In Colorado we have met with the Commission on Higher Education, the college and university presidents and we are embarking on several task forces this fall to make sure that the high school math, science and English teachers know what expectations are held by colleges or universities and that the expectations are spelled out at the college and university so that we have a fighting chance to meet them. So your report will be helpful to us in that regard.

Secondly, at the national level the chief state school officers met here in 1981 along with the state higher education officials and college and university presidents to look at how

we can improve the articulation and address this standards' question. We have another national meeting of this same group at Yale University in February. Again, I would say the input from the Commission meetings across the country will be helpful for us to identify specific things that we can do. I'm saying that because I think you should realize if you haven't by now that out of this Committee could come some recommendations and some conclusions that fit into local and state efforts that are ongoing that can make your work, I think, satisfying to you and productive over the long run.

In terms of some specific questions that were asked, I'll just react to two aspects here. Number one, we have set up something in Colorado that has been very, very fortunate for us and very useful in terms of bringing business and schools together. We have 51 school/business councils established. These 51 councils serve 90 percent of our communities. They meet regularly to see how the business leadership feels about K-12 education. We have two goals this year: one, to include higher education representatives in each of the business councils; and secondly, to make sure that every one of the business councils starts with the question, how well are the schools K-12 and higher education serving business and industry in that particular region of the state. Out of that dialogue comes some very creative programs that are unique to that region and meaningful and I would certainly commend this to any other state.

A second aspect that I would address would be the rural education feature that relates to our Dakotas, Nebraska and the other Midwest and Rocky Mountain states. We do very well when it comes to basic skills in a very personalized instruction that I think carries the student well into the work opportunities in terms of work habits and basic skills. What we lack in the rural areas are career education, exploration opportunities and specific job training programs. The latter will be hard to meet, but with new technology and with the support I think, and appropriately so, of the federal government in this area, we could boost rural education in those semi-isolated areas with some of the new technology, but it's beyond the capability of any one state, I think, at this point to do that.

Lastly, very quickly let me go into the recommendations. Number one, in Colorado last year we began asking business and military leaders in our state what are the expectations you have for persons coming out of the secondary schools of our state. We found that many businesses were testing students and that the military also had a number of tests that they were given. However, when I went back and asked high school principals and counselors if they knew what tests were being given and how their students would do, that answer was no, they didn't know what these tests were. So we've embarked on putting together a common denominator of needs and expectations of the business. We've met separately with the military. I'm talking now with

representatives from General Thurmond's office in Washington to establish those kinds of expectations so that if by 1983 in Colorado we can present to our high schools this is how business is going to be testing your students, this is what the military will expect, and if they don't do well in these areas students will know early what to expect rather than after graduation.

We're pushing for this kind of assessment to take place no later than the junior year so that remediation is properly taken care of by the local school district in the high school preparing that student for the work force. Until that happens all of us are going to continue to get calls like I did from a parent who said, "Well, I want to tell you about your system. My child graduated last June and has been turned down by business and has very limited opportunity in the military." He or she should know that two or three years in advance, but we lack the specific organization to make that available in our state and I suspect in 49 others. You could help in this effort.

The national assessment of educational progress has been a helpful step in terms of the efforts that this group makes through the Education Commission of the States. We need to build on that project so that we have a periodic sampling across the country, math one year, science another year, social studies a third year, fine arts a fourth year, don't forget that, and a fifth year could be the language and communication skills. States and locals will use that project and I feel

badly that I'm hearing suggestions made that we pull back from the national assessment of educational progress effort.

Third, NIE. NIE, regional offices, and labs and centers are charged with doing research and dissemination of findings. There is overlap. There is a lack of coordination that should be resolved and unless those kinds of issues are addressed, state and local school districts cannot make use of the many excellent findings that are coming out of those particular groups.

Number four, NIE has been badly treated in my judgment in the last few years. Again we need some national leadership and the last few days that I've had in doing workshops on the western slope in our state would be a good example of this need. We met with a lot of principals in that area. We were going over what makes an effective school, and the twelve criteria that I talked about would not have been made possible without the research base that was provided by the NIE efforts over the years. We should not treat NIE shabbily and provide no direction.

I've mentioned rural education.

Number six, our dropout rate has improved in a number of areas. Our black dropout rate has gone down. We have not solved the problem of the Hispanic dropout and I find in my reading on the national level that we have not somehow found the solution elsewhere. I would hope you would give some attention to that particular group.

And lastly, efforts like those made by Congress in Chapter 2, the consolidated grant program, have been very helpful to us. This approach gives us flexibility, without massive regulations, to address excellence and we would hope that those kinds of approaches could be continued.

Thank you very much. I appreciate what you do. I appreciate the concept of a Commission going out to receive testimony on excellence. It's long overdue and I, for one, as as a Chief States School Officer thank you for this and for the Secretary of Education's effort in this behalf.

MS. CAMPBELL: Thank you, Cal. Dr. Taylor?

DR. TAYLOR: Let me express my appreciation for the opportunity to be here, for your serving on the committee, and for the Secretary's commissioning it. I might also add as an aside it seems like old times testifying in front of Al Quie again.

Excellence in American products and increased productivity are essential to improve balance of trade, improve the economic conditions and improve standards of living. Increased excellence in vocational and technical education will contribute to these urgent national goals. Increasingly vocational educators, in consort with other educators and representatives of the employment community, must pool their talents and resources to achieve increased relevance, efficiency in the educational enterprise, and quality in the system. My paper highlights

some of the major constructs undergirding secondary vocational education and I have confined my paper to that portion of vocational education, provide some research findings on new directions and status of vocational education and offer some recommendations.

I think it might be interesting to point out that high school vocational education, despite the increased number of options that are being generated, still provide to the mainstream system for prpearing many, many of our young people for initial entry and employment. Presently, we're serving over ten million individuals. Seventy-eight percent of all high school students take at least one course in vocational education and if you add industrial arts and consumer and homemaking, 88 percent of all high school students take at least one course. Twenty-nine percent, however, of the high school students account for 63 percent of the credits that are offered in vocational education. So what we have then is a situation where vocational education is serving a very extensive role in career planning and exploration and at the same time providing a concentration of program offerings for about a third of the students to prepare themselves for careers in depth.

Dr. Worthington mentioned at noon the number of schools and institutions that were engaged in that. Let me share with you, if I may, some of the recent studies that the National Center has done on the perceptions of secondary vocational

education and what key groups, like the National Association of Manufacturers, the U.S. Chamber of Commerce, and the National Association of State Legislators were engaged in national surveys conducted by their association and what their perceptions and recommendations were.

In general, they felt that secondary schools should continue to offer occupational specific training, but also they should provide increased emphasis on employability skills and basic skills. They indicated that other things being equal, they would prefer to hire a vocational graduate over a non-vocational graduate because they were more nearly job ready and they required less time for training. Additionally, the respondents indicated a willingness to be more involved in the planning and evaluation of vocational education. They indicated an interest and awareness in serving on advisory committees, sharing equipment and many other things that would indicate a very positive attitude on the part of private industry to extend their cooperative endeavors with vocational education.

Now, with respect to the effects of vocational education on participants there are no absolute conclusive studies that indicate the status of so diverse an enterprise. However, when we take the National Longitudinal Survey and the other national longitudinal studies we're finding that a majority, over 50 percent and more nearly 70 percent of secondary and post-secondary graduates who are seeking work are being placed in jobs

related to their training. The actual employment rates are higher because there are some graduates that are being placed in jobs that are not related to their training.

We're finding that in some program areas, such as trade and industry and females in secretarial programs, students consistently have higher earning rates than nonvocational graduates. About one-third of secondary vocational education graduates continue their education beyond secondary schools. New data emerging from longitudinal studies being conducted at the National Center based on actual transcript data and not just self-designation are finding that participation in vocational education is increasing school retention; it's reducing dropouts among high dropout prone populations. However, it is not absolutely effective in terms of the most dropout inclined or the most alienated.

We also are finding that a large majority of graduates are reporting satisfaction with their jobs and training, and employers are satisfied with vocational education efforts. Additional indicators from representatives of national school boards and from school superintendents, in regard to areas of emphasis needing increase in local programs, put vocational education as their number one priority.

Looking now at some possible recommendations for the Commission, I would suggest as number one that we need better agreement on the goals of secondary education. For example, a

national study conducted by the National Center found that when local principals, teachers and members of the community agreed that one of the purposes of the secondary school was placement, then placement rates were significantly enhanced. Additionally, we need a stronger correlation between the goals, the use of student time, and the allocation of resources. Research on time on task and also the recognition that if vocational education can and should make a contribution to basic skills, then that's got to be tied to student time and resource allocation. We need to recognize that excellence is possible and essential in programs of vocational and technical education and that those with high quality occupational skills and competence should enjoy equal social esteem and be accorded equal status and support. We need to reassess the vocational sequence in high school to assure a mastery of basic skills, scientific and technical literacy, and employability and employment skills. We need to link secondary education more effectively with the community, to increase emphasis on explorential-based learning, cooperative education, work experience, and participation and involvement of the employment sector in the planning, conduct and evaluation of vocational education.

We need to improve the articulation and the coordination with general education and vocational education. We need to place more emphasis on teaching transferrable skills working toward a conscious ability on the part of students to adapt those

skills to a broad range of employment situations and tasks. We need more emphasis on upgrading the technological skills of vocational instructors to keep abreast of new developments and technology in the work place. Additionally, we need to improve the articulation between secondary and post-secondary programs and with other employment and training systems.

I would also stress that we need to place earlier and increased emphasis on measures to prevent dropouts, to prevent alienation. We need more emphasis in the earlier grades on mastery of basic skills and we kind of have a situation where we never have time or the resources to do it right, but we always have time to fix it, as one of the speakers was mentioning this morning, with respect to high costs on remedial programs.

And, I would make a strong plea for a continuing federal role in education at the secondary and post-secondary level. Such a role could focus on amelioration and reduction of critical national problems, capacitation of state and localities to deliver quality programs, and essential services such as research and development and information systems. Additionally, we need to improve the access and availability to high quality options and to continue to strike that balance between equity and economic efficiency. Thank you.

MS. CAMPBELL: Thank you very much. As you talked about the articulation between the high school and post-secondary education, I'm reminded of the fact that there have been a

number of people, I believe, who have worked on this issue so that the competencies necessary to flow from one level to the other are being identified and are being used so that the same work is not repeated.

John Peper.

MR. PEPER: Thank you very much, Madam Chairman, members of the Committee. I commend the President and all of you who have agreed to serve on this Commission. I too recall, Dr. Taylor, many elements of history. We fought the battle Governor Quie, in the 1970s for reform. It was another title which you held. We defended Title 1 and many of the programs over the years. Sometimes we even fought about and condemned some of the programs in one form or another, and we're at it again. Happily, this time we discuss a great topic and that is quality education. I'm happy that the past 15-20 years have permtited us to solve some of the problems that were more basic in terms of social conditions, in terms of providing at least space for students where we needed to and now we can deal with a topic that most educators would like to deal with, and that's the topic of quality.

I'm not a vocational educator. My vocational education staff present their views to you from a local point of view about some of the things they'd like to see happen. I'm going to commen that paper to you as a point of view about vocational education and most of what I'll say, although I'll refer to some of the

written recommendations that will have to do with the topic in general of quality education and the point of view that I hold about it. I will particularly stress a role for the federal government and a role for local educators. I must admit that this statement's my opinion--nobody else necessarily endorses what I'm about to say. I endorse in vocational education that it's important to continue the historically productive training programs. However, in our staff recommendation No. 4 I would caution that we are also aware that the job market's changing. Only about 30 percent of the jobs in America today are what we have traditionally called blue collar and we're advising our vocational education staff to become aware of that fact and to transition to the information society.

In that transition, even traditional jobs such as automobile mechanics are being asked to take up the electronics for analysis. Those areas of the new technology such as word processing and computer technology are being added to our professional courses as well as to courses in all the schools. In saying that I'm pointing to a need for funding professional vocational training and for expensive equipment. If the federal government wished a role in that process at the local level we would invite expenditures, especially for the new expensive equipment. Moreover, I think we would be pleased if we had some demonstrations to our teachers on how to use that expensive equipment; therefore, funding of agencies or businesses who may

be in position to teach teachers how to use the equipment that we're going to have would be very helpful. We're not in a position these days in public schools to hire large numbers of new professionals. Now, we are on bare bones budgeting. We are cutting back. The signs of the times are such that there are not large developmental funds available to us for expansion. Therefore, we are talking about for the next twenty years essentially having the same teachers in our schools that we now have. So if we wish to introduce new technology, which we do, then we need assistance in bringing our present staff, principals, administrators and teachers into a working acquaintance with the kinds of machines and tools that the students have commonly in many of their homes.

We would also stress the continued role and importance of the vocational counselor. It is my personal impression that no citizen in the United States is well educated if he or she lacks the skills or the education to hold a job. Quality education has one essential component. If it's missing, it lacks in my mind the essence of a definition of quality education, and it is that if one cannot hold a job, I don't consider that person to be well educated. Therefore, counseling in general education and building career components such as those that have been developed very well at the Center for Vocational Education at the Ohio State University and other places, now to be made available in a national distribution network system far more in abundance

than it has been in the past. I would strongly support activities which would make existing knowledge in this area and existing knowledge in the field of career education much more available than is currently available.

Our staff suggests that block grants to states which allocate a certain portion for vocational education is wise. I would support that and I would add a condition. Local autonomy should be permitted to designate programs. This is insisted upon because what I need may not be what Denver needs and may not be what Cherry Creek needs and may not be what Washington, D. C. needs, so I would say block grants for a vocational or career education which lack specific restrictions would be very helpful.

You notice I do speak about money. I believe there is a federal role in providing money for education in a general sense. I would like for the federal government to rethink its position with respect to the amount of money that currently they're willing to provide in support of those persons who work on federal property, whether they are military bases or whether they are federal property that is tax exempt in local communities in order that a better quality education could be provided not only to those students, but could also be provided to the students of the community in which they serve. I am an advocate of the 874 funding being restored and I think there is a good rationale for it. Quality education is that rationale. When local communities have to ante up the money and have no tax base

to support it. For large numbers of personnel who primarily are serving the federal government it makes it difficult for local taxpayers to support a quality education in many communities of the United States.

I also recommend a federal role for research in education. This is not a new recommendation of mine. That role, I think, needs to change from what largely has been characteristic of educational research over the last two decades. I would characterize much educational research of recent vintage as fadism and political opportunism. I think we need now and have the basis upon which to provide within educational research, longitudianal studies which can tie observed outcomes with observable causes in the school house. It's time that we forget those persons who make silly claims that schooling does not make a difference. Most of us sitting in this room are ample testimony to that fact that schooling does make a difference. What we need to find out is what goes on in the school that does make a difference and we have researchers who are capable of doing it. The federal government could help by funding sustained longitudinal studies which tie effect and cause directly, particularly to those elements we have control over in the school house. We do not have control over poverty in society and in schools. We do not have control over a person's biographical characteristics. Students come to us with them. What we have control over is educational practice in the school house.

I believe that there are institutions which are capable of conducting sustained longitudinal research. I'll name some, there are many, many others: the American Educational Research Association has many members who could give advice on this subject. The National Institutes of Education has done a magnificent job in some areas. Their effective school studies that the Commissioner mentioned earlier is one example. The Northwest Regional Educational Research Laboratory has done a marvelous job of reviewing the research on effective schools, has packaged it and made it available to the National School Boards Association. I believe that the federal government could help in tying together institutions and funding some of their training packages so that they would be made available to the public school personnel at a reasonable cost throughout the United States. Such a network might include the Northwest Laboratory, the National School Boards Association, the American Association of School Administrators, and maybe some of the principals and teachers organizations.

The National Assessment is, I think, a very important program for the United States. It is time, however, for that program to move out of its adolescence. It was commissioned in the mid '60s as a simple cross-sectional analysis of where the status of American education was with respect to some very fundamental courses. The next phase, I think, could be funded in a much more beneficial way to society so that we could get

at what I mentioned earlier, what goes on in the school house and what its effect is. It simply does no good to find out that the students in the Rocky Mountain states read better than the students in Florida or Arizona or New York. What is important is what causes them to read better. Is it because simply they were born in better households? I think something in schools effects the findings. And, if it doesn't, what should we be doing in schools to make students better able to read in one area of the country than the other, because we know from other research that talent is reasonably uniformly distributed throughout populations in geographic regions of all parts of the country.

I'd like to see the next phase and I understand the federal government is going to refund and re-look at the contract for National Assessment. I'd like for the next phase of that contract to stress effects in school that cause the outcomes that are observed. I hope that when that panel which reviews the contracts insists that part of that review tie cause and effect rather than take a cross-sectional analysis and find out one more time that the Rocky Mountain states children read better, do math better and are better scientists than students from some other part of the country. We are ready to move into our adulthood in educational research and in the profession of education. That kind of study and analysis would permit us to do so and help us very much.

I would suggest one final recommendation for the federal government. They have given us several over the last couple of decades. And that is that these kinds of studies be funded at the laboratory, the university and professional society level and that funding be made available in the block grant category and that as much restraint as possible be exercised in trying to regulate the practice of education because education is still an art form, and over-regulation assumes a sicence that is not there. I think the locals with the right kind of funding, the right kind of encouragement, might be in better position to do a better job without regulations than if they were over regulated with the assistances provided. Thank you very much.

MS. CAMPBELL: Thank you very much, John, from a practicing administrator.

Mike MacDowell.

MR. MACDOWELL: The Joint Council on Economic Education is delighted to have this opportunity to appear before the National Commission on Excellence in Education. It is especially pleasurable because two of your members are closely associated with us. Dr. Campbell serves on our Executive Committee and Mr. Foster is on our Board of Trustees.

Consideration of the role which education can play in building and maintaining a productive economy is vital to economic educators. Perhaps no other economic system is more dependent on individual knowledge about that system than is that

which we have here in the United States.

We feel our market economy is both strong and fragile. Strong because people working for their own self-betterment can assure the betterment of all; and fragile because individuals must understand the basic operations of this system if they are to succeed in it and prosper. Economic understanding is perhaps more important today because some of the basic changes are occurring in our world of work. As blue overalls are metaphorically and perhaps actually replaced by white lab coats, the functions of people who change garments is also altered. They work with much less supervision, or even on their own. The machines with which they work tend to become their servants instead of their masters. They need to make more decisions on their own rather than rely on instructions. Finally, use of their combined experiences and judgments, as well as their own decisions may have managerial consequences as great as those of management itself.

Independent and individual decision making is the basis for choice, and choice is the base of economics. Helping students gain the capacity to make these choices and make rational decisions is the purpose of economic education and the purpose of the Joint Council.

We are at bottom a local organization. We have affiliates in 50 states, 232 centers for economic education, and about 625 school districts affiliated with us enrolling some

11 million students. We reach about a hundred thousand teachers a year through various teacher training programs. The Council is a federation in the true sense of the word. It is governed by a board made up of business, academic leaders, as well as labor representatives, the important tri-party arrangement that Mr. Francis spoke of earlier today.

Many deplore the lack of economic knowledge among the general public. The statistics and statements appear almost monthly. We see them in national magazines and in the press. The recent Test of Economic Literacy, at the high school level, which was administered nationally indicated that 58 percent of the students still did not understand that having more of one thing could come only at the expense of having less of something else. Another report on teenage consumers issued here by the National Assessment of Educational Progress found that more than two-thirds of the students were unable to compute installment payments on a car when given the purchase price, the amount of the down payment and the finance charge. More generally, in a recent survey only 42 percent of the students could identify the basic differences between a market economy and a command or socialist-based economic system.

Many decry these findings. The appendix to my formal testimony has a number of citations to that effect. I would only cite a few including Secretary Bell in a speech before the AFT in this very city last year when he said, "I would like to

see the schools put more classroom emphasis on the economy and how it works. Many people need to understand that this nation is only as strong economically as the ability or the willingness of citizens to produce goods and services."

The Council of Chief State School Officers has gone on record endorsing quality and objective economic education in the Joint Council on Economic Education. The National Commission on Productivity and Work Quality recently concluded that, "A comprehensive program should be promoted for the general improvement of public understanding of the American economy and how it operates."

Why this sudden interest in economics education? There are several reasons. Certainly, the demand for economic education seems to vary inversely then with the business cycle. For instance, the emphasis on economics in some of our large inner city schools occurred during the great Depression, and the subject is still required in New York City before graduation from high school. The Joint Council on Economic Education was established after World War II, when there was a general fear of renewed recession and an actual inflationary spiral. From '62 to '64 concurrent with public discussion of tax cuts, another thrust for economic education occurred and resulted in the establishment of the Developmental Economic Education Program (DEEP), a system where school districts affiliate with their state council and the Joint Council for in service

programming and material development and evaluation.

The second reason for interest in economic education is manifested in state mandates. Currently, 27 states mandate some kind of economic education.

A third reason for the interest is that success seems to generate interest in a subject matter. The fact that students of teachers exposed to Joint Council programs do score significantly higher on nationally normed tests of economic understanding has generated a great deal of interest among LEAs in economic education. I cited in formal testimony some specific statistics. Let me reiterate them to you now.

Students of teachers enrolled in DEEP with formal in-service training, are 100 percent more likely to understand that buying more of one thing can come only at the expense of buying less of something else. In other words, they understand trade-offs. They are also 25 percent more likely to understand the role of profits and incentives in a market economy; 24 percent more likely to understand that active competition is a vital ingredient to the proper functioning of a market economy; and 33 percent more likely to understand that the lack of educational and technical skills is the major cause for low income in the United States.

Independent research conducted by the National Assessment of Educational Progress indicates that, "Economics was the only one of the four social studies areas in which there

was any improvement for 9 to 13-year-olds." So we are seeing some specific improvement where we can concentrate on teacher training and quality materials.

As might be expected, these test scores represent an increase in teaching of the subject matter and in the quality of the teachers. I might also suggest that independent studies published in the Journal of Economic Education indicate that at the elementary school level, quality economic education programs interest students in subject matter other than economics and that student test scores in mathematics and reading actually improve when these subjects are tied to classroom programs stressing personal economic decision making. So, economic education can be not only a relevant subject, but also one which interests students in the broader range of educational goals which we're all discussing here today.

With regard to recommendations, I would break them into two categories. The first are those that are generally of interest to educators. The second are those which are more traditionally concerned with economic education per se. With regard to the general recommendations, despite the fact that over half the nation's states mandate some kind of economic education, few use any testing sequence to monitor the mastery of economics teachers or, perhaps more importantly, students. Still fewer states require any teacher preparation in the subject area. At present few teacher training institutions are either capable of

or willing to institute courses in economics or economic education or related subject matters. There is little wonder, therefore, that only 25 percent of the new graduates of most of our teacher training institutions report any course work in the area.

Textbooks are still the core materials specifically used in economics. In '73 the Joint Council published a review of economics textbooks. The review found in general that most textbooks had severe shortcomings in content and, at times, actual errors. Improvement was necessary. I'm pleased to report that there has been a significant turnaround. New social studies textbooks include more information about economics and with greater frequency than before. Errors in most texts have been removed. In addition, economics texts for a specific grade level such as the junior high school have been developed.

The recent study published by Yankelovich, Skelly and White which surveyed over 800 teachers of economics throughout the country found that most of them use ancillary materials in the area of economics education. They reported that these materials were helpful, but they also reported that many of them were not objective and served to underscore some educators' feelings that economics education was a no man's land for special interest groups on all sides.

With regard to specific recommendations, I would make several. Because the private sector has the most to gain from knowledge of economics on the part of workers, consumers, and

citizens, we firmly believe that the private sector should pay for most of the programs. Public sources should be used to match funds contributed by private sources. I would underscore, however, that there should be a greater coordination of the relatively small amount of funds which do flow both from public and private sources into education. A place to start would be for this Commission to endorse the policy of the Council of Chief State School Officers which endorses the Joint Council.

While materials are extremely important to economic education, teacher training is of the utmost in importance. Therefore, most of the resources should be directed to the teacher training area.

A basic set of standards with which to train teachers and produce materials would be very helpful, and we hope that the Commission might suggest a set of standards to work toward.

The standing policy of the Joint Council is not to endorse state mandates in any area of the curriculum. However, we do feel that when state mandates appear the states should provide some resources to help teachers understand what they are to teach and the methods for doing it effectively.

Those are our recommendations. Thank you very much.

MS. CAMPBELL: Thank you very much, Mike.

Larry?

MR. BROWN: Chairperson Campbell, members of the Commission, I'm Larry Brown, President of 70001-Limited,

The Youth Employment Company. I suspect through the course of the day, and I've sat through most of your testimony, you've heard all of mine. Let me see if I can characterize it a little bit from a practitioner's perspective.

There's always been an unquestioned belief in America that performance on the job is in some way determined by how well we've been educated, but as yet there's no simple formula to figure how we link education with productivity. Our daily experiences aren't much help either. On the one hand we encourage and reward those young people who do well in school, but as most employers will tell you, the best students do not always make the best employees. Too many other factors such as attitudes, expectations, or even race and sex enter into the equation.

In discussing the employability of secondary-age youth I'd like to go over two aspects of education and their relationship with two aspects of productivity. On the education side I'll address the ways in which young people, the economically disadvantaged in particular, can and must acquire the necessary reading, writing and math skills for on-the-job success. It is equally important, however, to educate youth in life skills, work habits and positive attitudes for productive employment. In 70001's experience these facets of education are two halves of an inseparable whole. 70001's in a fairly unique position to comment on the link between education and productivity.

For more than a decade we have been helping young high school dropouts overcome the educational and employment barriers that prevent them from becoming productive citizens.

The unemployed high school dropouts in the over 100 programs we instituted across the nation are almost universally believed to be part of America's productivity problems. Among the over 25,000 young people being served, most are age 18 and younger, from minority groups and female. Almost one-third are parents of at least one child and 7 percent more than one. Interestingly, over 50 percent of the young people we see are from families in which neither parent ever completed high school. Eighty percent read below a ninth grade level and one-third have never held a job. Few have held any job beyond two months.

These high school dropouts, and thousands of prospective dropouts in our classrooms today, are a potential bedrock of permanent, underclass citizens who could remain without significant work for the rest of their lives. 70001 has proved, however, that even these most disadvantaged youth need not be written off. During the past six years alone, 70001 has placed more than 16,000 young dropouts wiht private employers. They were hired solely on the strength of newly acquired skills and without employer incentives. Furthermore, these youth are among the most unmotivated and least skilled, and participated in the 70001 pre-employment training program without the benefit of wages and allowances and more than 80 percent of the young dropouts who

complete the training are eventually placed, usually within two weeks, into private unsubsidized jobs.

Our experience convinces us that young people do want to work and will participate in training without being paid to do so. 70001 has shown again and again that employers will hire job-ready youth who possess the work habits and the attitudes necessary to become productive employees. Pre-employmen skills and positive work habits are not enough, of course. A solid foundation of reading, writing and math skills is vital not only to success on the job, but in life as well. From a productivity standpoint, it's incumbent upon all of us that our educational system produces graduates who possess the basic academic skills necessary to strengthen the economy.

70001's educational program stresses the basics and all enrollees are encouraged to study for and pass their high school equivalency exams. Scholarships are available to those who earn their GED's and wish to enter post-secondary education. This emphasis on education is so pronounced, in fact, that the majority of enrollees refer to 70001 as a school rather than a job training program.

Why do these high school dropouts respond well to 70001's educational program? First of all, it's important to keep in mind that young people rarely leave school because they lack the brain power to learn. The vast majority are of average or higher intelligence. Their reasons for dropping out range from

simple boredom, to alienation, to pregnancy. Some are from troubled homes and many have substance abuse problems. More than a few have undiagnosed learning disabilities. In other words, the learning capacity is there. The key is to devise an educational program flexible enough to meet the needs of young people whose previous learning experiences have been so negative.

70001's GED program is self-paced, making use of small group and individual instruction. For those who lack even the skills required to prepared for GED, 70001 offers a competency based curriculum and an adult basic education program. A formal recognition system rewards publicly those students who do well but does not chastise those who learn more slowly. Local staff provide intense counseling needed to help participants overcome personal barriers. Classes are often held after normal business hours so that participants are not tempted to give up their educations for the more immediate gratification of a paycheck, and we often "conspire" with employers once our subjects are hired to provide incentives for continued education. But there's more to making youth employable than a thorough grounding in basic academic skills.

Many people, no matter how well educated, enter the world of work with unrealistic expectations, negative attitudes, and no real sense of direction. 70001 couples its instruction in academic disciplines with programmed activities that teach young people what the world and employers expect of them. These

activities, and they range from civic involvement to simulated work settings and leadership training, also build self confidence and self respect. It is impossible to overstate the important of these latter two factors. Young dropouts come standard equipped with self images only a notch or two above zero. They are well prepared for failure and perform as expected. It takes an enormous effort to overcome these deeply ingrained patterns of failures. Even the best designed education and training program can be dragged down with the self failing attitudes like this. When you get right down to it, attitude is the key ingredient to insuring a higher level of education and productivit not only for youth, but for all Americans. Attitude development is part of our formal education system and can no longer be ignored. Just as 70001 builds opportunities for success and lessons for failure into all of its activities, our national institutions must do the same.

Schools must lavish praise not only on the merit scholars and athletes, but also on students who achieve often more difficult personal goals and objectives. Only when youth have a chance to recognize and test their self worth, and until they feel they have a contribution to make will they be productive workers. The employers 70001 deals with are primarily concerned about immediate productivity of individuals once they are on the job. It is here that 70001 has focused its efforts over the years to develop a work readiness program to boost

productivity of new labor market entrants, especially from economic disadvantaged backgrounds. With the benefit of 70001's intensive pre-employment training program, young high school dropouts with no previous work experience begin jobs knowing what to expect and what is expected of them. They are conscientious about absenteeism and are less likely to quit over a minor problem.

In the research study that Dan Saks referred to this morning, it was found when interviewing our employers that over 30 percent of the employers found that the young people we placed with them performed better on a list of criteria than their co-workers hired through the employer's normal hiring process. And fully 90 percent of the youngsters we placed performed as well or better than people hired from the normal hiring process and these are economically disadvantaged youth, whatever that term means. It equals productivity and it equals profits. It's a major reason why employers in 16 states have come to rely on us as a sole hiring source.

In its 13 years, 70001 has learned a number of lessons about how to link education and training to on-the-job productivity. Let me summarize a few briefly. Very simply, young people will learn better and faster if they understand why the material's important. Relevance is a key. We heard Dan Saks say earlier this morning that work by in-school students is increasing in this country. What a marvelous opportunity to use

that outside work they're doing, to link it with their education. Secondly, people of all ages will perform pretty much in form with the expectations we set by them. Make young people believe they will fail and they will. Give them realistic expectations of success and they will succeed. Third, people will perform best when they feel they are making a contribution. We all like to believe our presence on earth makes some difference to someone somewhere. Young people especially are searching for constructive roles to play. Fourth, although jobs require increasingly sophisticated skills, employers are willing to train people who demonstrate good work habits and attitudes. We've heard that a number of times today. This is especially true for young people. A Labor Department study found little resistance among employers to hiring youth of disadvantaged backgrounds for enrollment in quality employment training programs. Only one in a hundred firms refused to hire because of a previous negative experience with employment training programs. Fifth, the concept of a public and private partnership is more than a desirable goal. It's already working in reality. Schools, employers, government agencies and other organizations are working together in communities across the nation to solve mutual problems. Many of our programs are run by high schools, secondary schools and community colleges.

70001 is proud to be involved in what we believe to be some of the most innovative employment training programs anywhere.

Their responsibilities are clearly defined, current issues dealt with openly, public and private institutions could do a great deal together to improve the quality of education and raise the level of productivity. I think it's time to stop talking about what we should be doing and find out what's already going on.

Sixth, the federal government has a role to play and we've heard that right in this panel here this morning. Many of the most effective school to work projects in this nation, including most of 70001's programs, have come about through stimulation of full or partial funding by the federal government. I spent the last three months visiting executives in most of the Fortune 100 companies in America and I'm convinced the private sector cannot and will not provide all the resources necessary to train the economically disadvantaged for productive careers. However, they will share the cost of programs that are more than merely income transfer programs, programs that are well-designed, well run, and that quickly repay their cost in terms of lower employment and higher productivity.

Finally, I have one very specific recommendation. If you consider nothing else I have said to be of import, I ask you to seriously consider this. For too many years those of us who work in the field of employment and training, and those of us who work in the field of formal education have labored in separate vineyards. Until we set aside our differences, as well

as our criticisms of one another, the young people we wish to serve will not benefit from our experience. In my experience in Washington as president of 70001 as well as chairman of a legislative task force for the National Youth Employment Coalition, it's continually put me across the table from representatives of the educational professions. Too often we cannot or will not agree on what to recommend or what we will work toward in the design of an employment training policy for this nation. Our differences are rarely large, but our distrust and our parochialism stands as the greatest barriers for people like me to become better educators and people like you to become better trainers of young employees.

As the Commission on Excellence in Education, I implore you to bring us together, whether it takes an iron fist or a velvet glove. We have much to learn from one another. If you will work to help professional educators become more willing to recognize the success of many community based organizations and alternative schools and the success they have achieved in putting people to work, I will pledge that I will match your commitment with resources of the National Youth Employment Coalition, which represents 21 of the largest organizations in this country, to work closer with you to learn how we can become better educators. Thank you.

MS. CAMPBELL: Thank you very much. The presentations from these five people have been very stimulating. Are there

questions now from the panel? Governor Quie?

GOVERNOR QUIE: Thank you, Anne. First I want to say, too, that I am encouraged after listening to you, not only by your optimism by what you've laid out as a possibility of making some strides forward. I'd like to ask two questions, if I may, to you, Cal and John. One is on the NAEP. Do you think it would be beneficial if you can get that information on your own state rather than just on the Rocky Mountains? And in fact, when I wrote encouraging funding of NAEP I wanted to put more money into it so you could find out how your own state has fared. They didn't do it in the past because it was too dangerous to find out. Are states ready now to find out?

MR. FRAZIER: Well, two reactions, Governor Quie, and then I'm sure John has one. Number one, as Chief of State School Officers we've encouraged the National Assessment project to move to a point where their findings and approaches can be utilized by local school districts and states. There ought to be a way for a cost sharing in some of the efforts so states can buy items out of the general knowledge data base once they're developed so that states could carry on their own maybe more extensive tests. This would make it possible to have the national findings from the tests that could be related very well to state responses. I think that would be important. They have been very responsive to this, so I think it's not a concept they oppose.

Secondly, the thing that I was really pushing for here goes one step further in terms of our experience. We have seen school districts focus so much on the math and the reading and science that I believe we have become quite sophisticated in these areas, but evaluating the total school program goes beyond that. What I'm getting from many districts is a request for help to look at social studies, citizenship, and fine arts programs. We don't judge those areas because there's little assessment sophistication in these program areas. I think that's where the National Assessment project could give us help to assess our total program in terms of responding to the citizens at a time of high fiscal concern. Those would be two reactions and the group has been very helpful here at ECS in discussing these with us.

MR. PEPER: It's my opinion that some states are already running mini-national assessments of their own on an annual basis. I believe Connecticut is one state which is doing that and there may be some others. They tend to like it. I always have been a believer that if I'm tested I should be given back the data for my organization, whether it's local, state or national. Mr. Goldberg has heard me insist on it so much, and so I think that if you're going to test an organization you ought to give them the data back at least about that organization, and the funding ought to be built into the program to return data. Then local districts could do whatever they

wanted to with it.

GOVERNOR QUIE: The second question I have is related to what I heard Mr. Forbes say this morning and I saw, Cal, that you have for a number of years seen improving test scores here. What he talked about is improving test scores on what we thought of as basic education, the reading, math and writing; however, that the reasoning skills, comprehension, the analytical skills have declined. Now that kind of threw me this morning especially when you try to look at a direct correlation. You would say don't teach them to read and write and do math so much so they can't think, but I don't think there is that kind of a connection to it. How do you account, the two of you, for that happening? Is there a lag or what is it, because I tell you, if I wanted to teach a person to reason, I'd sure teach him how to read.

MR. PEPER: I hope James Coleman's not as wrong about this topic as he was about his previous research. I know Coleman's latest major study indicates that students now know how to read and so that's a compliment, I suspect, but before we're through blowing our chest up over the compliment, he says, "But now they don't think." And Mr. Forbes got on the band-wagon with that idea based on a study of a writing sample of students. I believe we have not taught composition skills as well as we should. However, my experience in talking on a daily basis with high school graduates leads me to believe that they think better than I did when I was a senior in high school. So I don't

put a lot of stock in one essay test of National Assessment as the basis for a national generalization and I hope that's one thing that national government would get over. You get a test score here, you fund Coleman, and the next thing you know we have the thinking curriculum come out for all the students in the United States, and that's what I call political opportunism or fadism. It is this kind of educational fadism that we've got to get beyond. I do believe we have failed to teach composition skills as well as we might have in the past two decades and I think Mr. Forbe's findings in this respect are correct. That the present students do not think well. I think has not been demonstrated adequately and certainly not sufficiently adequately to indict a generation of students and so I'd say let's be a little cautious there. But if we want to teach thinking and composition skills we know how, and maybe we need to set that as an expectation as has been said earlier, for ourselves. We could get a great deal of help if college entrance standards were a little higher.

MS. CAMPBELL: That is happening over the country. Cal?

MR. FRAZIER: The reaction I'd have to that, Governor Quie, is that this is the same thing that I heard from business leaders in the interviews that I've participated in over the last year. I think it was important that we address the national concern about the ability to read. If somebody

can't read it forecloses expansion of the mind in other areas. May I go back to our Colorado model? We have tried through local committees to set up meetings involving parents, taxpayers and students. Twenty-nine hundred individuals participate in the local committees to monitor student progress and advise local boards of education. When you've got that kind of coalition established, change took place. I think we've gone through a period of focusing on reading and math scores. Now when business says we want somebody who can think, who can be creative, I think that if, with the National Assessment Project also asking the same question, we can come back to such questions now that we have gotten through this preliminary emphasis on reading. We can move to this next level and that's why I'm so encouraged in a way by what's happened over the last five to eight years in education. It's got to be done.

GOVERNOR QUIE: Thanks.

MS. CAMPBELL: Arlie?

MR. FOSTER: This is addressed to Mike MacDowell. I have two questions. One is, do you have any information that tells you that learning more about economics makes for more productive workers? That's the first question, and the other one which is in the same area and certainly the subject of the meeting today, do you find that by helping students learn more about our system, they become better decision makers? Any examples of those would be helpful.

MR. MACDOWELL: We do carry on some research in the area. Obviously, we're interested in cognitive rather than attitudinal changes and longitudinal, and attitudinal changes are very, very hard to come by. I mentioned a couple of studies which do indicate that economics learning does seem to interest children more in other basic skills. One or two in particular worth mentioning. A program called the Mini Society created by Dr. Lourilsky of UCLA, where children actually create their own economy in the classroom and learn by doing. Where that has been tested in Los Angeles and Wilmington, Delaware, we see significant increased student test scores on basic reading and math tests. Although these are not quantifiable at this time, teachers report a better attendance record in inner-city L.A. schools where this program was utilized.

With regard to the question about productivity and economics education, several advances have been made here. We do have an attitudinal measurement instrument which attempts to correlate changes in attitude about economic-related subjects including productivity as a result of exposure to the program. We find that students of teachers who have been trained in the subject matter have a much better appreciation of the system. This was verified by a study completed by a Business Roundtable in '73 and '74. Also, people exposed to economics seem to have a greater appreciation of matters economic. In other words, they'll pick up a weekly periodical and search for those issues

that have economics at their base. They also develop a transferability. That is, they will be able to understand that an economic situation they learn about in one industry or in one job area or in one personal expenditure decision is applicable to a similar situation. We can show some postitive research here but I would agree with the rest of the panel that much more longitudinal research is needed.

MS. CAMPBELL: Emeral?

MR. CROSBY: Yes. I have several questions to several different persons. Coming back to Dr. Taylor, you mentioned, I think as part of your recommendations, there must be a link between secondary education and the community. Although we've been talking on a broader scale, but at the same time you said that there must be some articulation between secondary education and post secondary education. Can you elaborate a little bit more on that link between secondary education and the community?

DR. TAYLOR: It can take a number of forms. Perhaps the most obvious one is the matter of program advisory committees. Others would be the utilization of industry representatives as resource persons in class, placement for cooperative education or work experience, instances where industry has provided equipment, have personnel put into the classrooms on loan. For example, Westinghouse has loaned one of their top executives to the vocational program in Florida for the past year. We have a publication out from the National Center that lists 138

innovative ways that industry and schools can link. Exchange of personnel, involvement of industry with respect to the technological updating of teachers and any number of links. One I might add, too, is business and industries' actual involvement in what programs need to be offered, how effective those that are being offered are, and participating in the evaluation of those programs is very critical.

MR. CROSBY: And one to Dr. Peper. I may know, but I would just like to get, as a superintendent, what are some of the things you mentioned in terms of funding and block grants and so forth. You're also highly critical of the federal government in terms of over regulation. I think that's the term that you used. Can you give me a couple of examples of this over regulation?

DR. PEPER: I think many of the vocational technical programs are good examples. In order to apply for the aid one has to have specific class sizes, a particular kind of teaching certificate, you have to even have an adult sponsor to take trips, and you have to commit yourself to national trips to qualify for some of the funding. Well, what if a local district doesn't want to take their kids out of school on trips? They should still be eligible for funding in my mind. I hope I'm not crifical as much as recommending it's time to change, and that's what I hope we're about. I think we've done a marvelous job in funding from the federal government in many areas, but I

also think that we can overdo the regulating and what I'm saying again, in special education is another example where we prescribed that related services be provided, and yet we've never been willing to define operationally what that concept means. We have prescribed that a learning disabled child be served, and yet no two people in this country can agree on what a learning disabled child is. The federal government, after spending large sums of money trying to define it with experts, pushed the definition problem back to the states for their own local definition. And I think that's a bit unfortunate. I think if we don't know enough about a subject scientifically to define in operational terms what it means, then I don't think we ought to prescribe it either.

MR. CROSBY: Okay, and one for Mr. Brown. I'm a little bit familiar with your program so I'm hoping I'm not really putting you on the spot. You were talking about how successful the program has been. I'd like to know what is the basis for the selection of your teachers who work within your project?

MR. BROWN: It's mixed. The site you're most familiar with is unique among the 45 sites for one thing. Many reasons, heavily industry focused, it's a long-term program. In most of our sites it's a mix of educational staff, certified teachers, and people with current or former business backgrounds who can go out and work in the business community. The educational staff can handle the educational portion of the program. The business people handle the job development and the work readiness training.

Our program in Detroit that you would be most familiar with is a mix of people with business and educational backgrounds and social service backgrounds, a very mixed in our program in Detroit.

MR. CROSBY: I understand that, but your teachers are highly motivated. I mean, they're very enthusiastic about the program and I think that makes a difference in any program, so how do you manage to get that --

MR. BROWN: Well, that's a very simple answer for me. Certainly not less important, and probably more important in our program, and more emphasis is placed on training our staff than training the young people we train. In all of our programs, and it's a controversial aspect of our program because we will go in, for example, let's take Hennepin Vo-Tech in suburban Minneapolis, and instituting a program in a school system like that we very often will not allow the 70001 site to be developed unless they commit to extensive staff training well beyond the training a staff normally gets and it's simple for me. This field changes too rapidly and too quickly and if you don't motivate the staff, you can't motivate the youngsters. I've been working with youngsters ten years and I know I have to look for my own motivations, so thank you for raising that because that's a point I didn't make but very heavy emphasis on training and motivation of staff.

MS. CAMPBELL: I think in many cases that brings out a

very important point and that is that we do expect those who are in our classrooms in the schools today to do their own in that way and there's been no one else who really takes the responsibility to give them the opportunities. They have to do it on their own.

Thank you very much. We will have a short break and come back for the Role of the Post Secondary Institutions.

(Whereupon, a brief recess was taken.)

MS. CAMPBELL: I'm wondering if we might come back to work. It is our pleasure at this section of the hearing to talk about the role of post secondary institutions and the transition from education to the work place. We're pleased to have Dr. Robert Stewart, Professor of Agricultural Education and Coordinator of Graduate Studies, Department of Practical Arts and Vocational Technical Education at the University of Missouri-Columbia. We're also happy to have Gordon Dickinson, Chairman of the Colorado Community College and Vocational Education Board. Karl Weiss, Vice Provost of Northeastern University in Massachusetts, Boston. And, Donald Schwartz, Chancellor of the University of Colorado at Colorado Springs. I think you understand the rules of the Commission and we'll begin with Dr. Stewart.

DR. STEWART: Thank you. Let me begin by saying that I'm very pleased to have this opportunity to present this testimony. I should recognize that Dr. Dyrenfurth, a colleague,

prepared the testimony of some 25 pages and I have tried to abstract the salient points in just a few minutes for your consideration today. Of course, there is much more in the written testimony for your attention.

I would also note that Dr. Taylor's comments related to many of the concepts of secondary vocational education. They're very appropriate and supported in this paper, for vocational education does involve secondary as well as post secondary and adult phases of education.

As an integral component of the nation's educational system, vocational education does share the quest for excellence. Therefore, the American Vocational Association is very pleased to have the opportunity to be represented with the testimony which was prepared by Dr. Dyrenfurth, who's a member of the Board.

Let me begin by pointing out some factors today's environment that I think you heard about this morning, and the many ways that we think these bear on the background for the recommendations that we'll move to a little later. These factors include things such as technological change. We see that our business and industrial complex is again undergoing significant changes and this affects the types of preparation needed in terms of skill training for workers. Other factors include the fiscal solvency of the United States and the financing of our educational systems. We hear about declining productivity in the work force, about more people in jobs dealing

with knowledge and information and about the processing of information. We find a decreasing resource/demand ratio for educating our youth. We find many dollars being spent for the education of youth and yet we find that there are still youth that are unemployed. We find that there are migration patterns back to rural areas. I think it changed some 6 percent in the last decade.

We'd like to focus very briefly on some strengths and some weaknesses related to what we see of the vocational education program at all levels. We think if we share these observations, they help to provide some background for specific recommendations a little later. One of the things that we would address would be the absence in many respects of technology education in our schools or all of our students. We hear about science and we hear about mathematics, and they are very important components of technology. But, we feel that they deal more with experimentation and concepts and do not address the application of technology from the hands-on basis that we are discussing here. Gene Bottom, the Executive Director of AVA, has urged that the movement for increased educational excellence be broadened "to encompass technological literacy."

Another point that we would mention is aging equipment and facilities in our vocational education enterprise, and a concern about a minimal investment in professional development. Teachers are expected to support, in many cases, their own

educational growth, and yet in vocational technical education our teachers have an opportunity to move to industry to higher paying jobs.

The rural areas and rural education have some unique problems related to the critical mass needed to support programs and the continuing increased costs of transporting students if we try to bring them to existing programs.

Now, some strengths of vocational education that we would like to point out. One is that vocational education is an in-place program in the educational sector of our school systems. Vocational education has a large spectrum of programs and these have evolved over the years to serve a variety of persons. Programs have been developed for orientation, for awareness, for career development, and for retraining for targeted groups, youths, and adults. These programs provide career orientation and skills for employment.

While we have noted that in the rural areas there are some problems, there is also coming out of the rural area a model of community involvement and entrepreneurship which is a strength that we would like to see incorporated in other facets of our educational programs.

We would like to suggest some very specific items for your consideration. One relates to funding of the programs and enlarging vocational technical education in this country. We would note that in vocational education we prepare individuals

for work. Both the employees and the employ should benefit. Therefore, we would like to propose some type of employer tax or some type of participation for employers be developed so that they could help support the vocational technical education system. This would let those utilizing our technical talent reinvest the fruits of this capability in a national drive for technological literacy.

Another similar recommendation might be to look at some type of Industrial Technology and Human Resource Development Incentive Tax Credit, where we could provide a mechanism by which industries could receive a tax credit for contributions of hardware, faculty, or facilities to be used for purposes related to training and vocational technical education.

Another thought relates to a national vocational and technology education trhust. We feel that our nation needs to mobilize and organize a National Technology Education thrust that includes a major role for practical arts and vocational technical education. There could be a similar refocusing in store with related changes in vocational technical education programs. This might mean that laws and regulations should be changed or at least broadened to encourage training for a broad technological base which will facilitate later specialization and greater ongoing cooperative efforts between business, industry and education.

An essential component of the problem of an absence of

technology-based programs in education is rooted in the perception of its clients and practitioners. There must be greater collaboration in the school setting between teachers of math and of science and vocational technical education.

We would like to point out that vocational education needs a continued federal presence that works toward the national imperative of technological literacy.

Another concern is support for professionals. In the final analysis, the quality of teachers is probably the largest single determining factor impacting on the quality of education. We need a significant investment in both teacher education and teacher rewards. There is also a related area that relates to teacher support. This is the issue that involves the types and amount of support services available to teachers.

In vocational technical education we also experience a special problem, namely the ongoing need for set up, maintenance and repair of our equipment and facilities. Sometimes precious teacher time is diverted into the maintenance of equipment and away from working with students.

We would be concerned with an investment in people. Given the acknowledged technological explosion and the ways of supplying vocational teachers, it becomes apparent that both existing and newly entering vocational education teachers will need great amounts of inservice education merely to stay current. Vocational education needs to be provided with an effective and

well supported professional development mechanism. We look to increasing contact with business, industry and labor in cooperative staff development activities. We also look for federal and state help in addressing the shortage of qualified teachers. Similarly, there exists considerable inservice needs among school board members and administrators and others in the community. There are many who could profit from knowing more about practical arts and vocational technical education.

One concern is specifically directed to the rural areas. The diversity in rural settings is too great to yield many useful generalizations other than the need for flexibility and tailoring. We have, however, learned some lessons. Rural school based enterprises tend to synthesize entrepreneurship, economic development and vocational training. We should like to build on these strengths in ways that we might strengthen vocational education in rural areas.

Another area of concern relates to research and development. This Commission's charge is to investigate excellence in education. In essence, its approach is to conduct research on the topic and then to deliberate on its implications. This type of opportunity should be expanded for vocational and technical education. Federal and state vocational education research dollars must be increased if we are to build viable mechanisms for coping with technological change.

I'd like to reemphasize the importance of the federal role in vocational education. We have heard that mentioned today in other respects. The concept has been well documented in previous testimony by the AVA to a variety of federal agencies and officials. Simply stated, there are many national goals that can be addressed by vocational technical education. Despite the provision of numerous recommendations in this testimony, we would acknowledge that there are still many unresolved issues. During the next year, the AVA has dedicated some time to address the issues at the secondary level and the following year we will address issues at the post secondary level. The Association would welcome opportunities at later times to share the outcomes of these activities.

Some of the issues we anticipate to be addressed would include delivering vocational education in areas of relatively sparse population, how the comprehensive high school can become truly comprehensive, how to better plan and connect secondary vocational education to the market place, delivering vocational services to adults and out-of-school youth, and deciding between the use of existing or new delivery systems in providing clients with occupational skills.

In conclusion, there are many challenges that face vocational education. Yet we already know how to be better than really what we are. Unfortunately, we are not afforded much encouragement in terms of resources that help towards the goal.

Nor is there a strong and consistent federal policy on vocational education. We would ask that the commissioners consider excellence in its most broad sense and that restrictive interpretations be avoided. Furthermore, please recognize that quality education requires decision makers that nurture it and that help it grow. The goal of developing technological literacy and capability is too important to neglect. Thank you.

MS. CAMPBELL: Thank you very much. We appreciate what you have said.

Gordon Dickinson.

MR. DICKINSON: Thank you. I am Gordon Dickinson, Chairman of the Colorado Stake Board of Community Colleges and Occupational Education. I appreciate the opportunity to speak to you on a topic, Education for a Productive Role in a Productive Society.

Our community colleges and vocational education training program must and do have this theme as one of their priorities. Community college education in Colorado is operated through eight state system and four local district community junior colleges with a head county enrollment of 40,000 students. Approximately 25 percent of the college enrollment in the state. Over half of the students enrolled in one or more than 350 occupational education programs.

The public delivery system for vocational education in Colorado includes, in addition to the community junior colleges,

seven state supported area vocational schools and 181 local school districts. Secondary and post secondary enrollments in vocational education will total approximately 100,000 in 1983. The Board also has the responsibility for the Colorado private vocational school legislation which provides for training in 93 proprietary schools.

The State Board is concerned about the excellence in education at all levels and we're particularly concerned about how to provide leadership for the schools and the delivery systems that we adminsiter in educating the people of Colorado for a more productive role in a very dynamic society. We find ourselves in a time which has been described as an era of high technology.

I am personally involved in the farm business and I have little doubt that the mini computer and the micro processor will become tools which are as necessary in the operation and management of a successful farm business as the tractor, plow and planter are now. Believe me, I can personally attest to the malady of computer illiteracy in our current society.

We can no longer prepare a draftsman with parallel rulers and a compass or even a sophisticated drafting machine from the past. Computerized drafting is the way it's done in industry and there are many other examples of changes in the work place brought about by advancing technologies.

Colorado still has many small, rural secondary schools,

several relatively small community colleges and junior colleges, and even some small four-year colleges. The schools still are the back one of these rural communities and will undoubtedly continue to exist as the educational and cultural center of the communities. How are we to provide for excellence in education to prepare people for a more productive role in society when the cost of providing quality education continues to increase at a rate that exceeds the ability of the people to pay for it?

Private business and industry have consistently been strong supporters of education in this state and I believe they will continue to be so. Advisory groups from business and industry with whom I work have told us they understand the difficulty that the schools are having in preparing students for high technology occupations. The equipment which the schools use is approaching obsolescence and the physical facilities cannot be kept on the same high standard with private industry. I believe Bob Stewart also addressed the matter of the obsolescence in the equipment in the systems. However, industry must either depend on the schools or do the training themselves. The cost will eventually be paid by the consumer. I doubt if we can afford to pay for two educational systems.

The rural communities of the state are falling behind faster than the urban centers. In general, the rural communities are supported largely by an agricultural economy which is currently plagued with high costs and low prices. The recent expansion of

the energy production industries and related businesses in some rural areas of this state, particularly on the western slope, has given cause for hope in these areas. The urban centers which attract new economic development have a better chance of staying current, but whether in rural Colorado or urban Denver, education must compete with a large number of other programs which are necessary to address those problems, particularly the problems that seem to accompany rapid population growth and economic development.

Schools have not always been able to get a large enough share of the available funds to provide for excellence in education. What can we do to address these problems? We must be ready and willing to make a public commitment to the pursuit of excellence in education. Secretary Bell has taken an important step in the establishment of the National Commission, but the National Commission cannot bring excellence to education in the United Stated by itself. There must be a commitment from parents, teachers, administrators, school boards, government at all levels and especially from the general public, including private business and industry. The commitment to quality in education must be felt at all levels and at all kinds of education starting at the kindergarten level and extending through the higher levels.

How do we obtain this commitment. You have already received a consistent litany of fiscal necessity and the request for strong federal assistance policy in vocational education. I

believe many of these are necessary, but it will not solve the problem by itself. We must speak about quality, we must write about it, encourage our best young people in the education field as teachers and administrators, provide moral as well as financial support, be willing to give our time and energy on advisory councils, accountability committees, et cetera. We must demonstrate to students, parents, teachers and administrators that we'll help, that we will accept nothing less than excellence. We can afford nothing less.

The elected officials must share in this commitment and public policy must reflect it. Two, education must become a cooperative effort. The school, community, parents, students and teachers cannot succeed without the support of the lay public and especially private business and industry. We have too often discovered that without a substantial local support within the community, a small rural community college simply will not succeed in that area. Excellence in education will be obtained only when education becomes a joint responsibility of the schools and the business and industrial community. The preparation of students for a more productive role in a productive society is too important to be left to the schools alone. Education is the business of all segments of our society.

We have made significant improvements in cooperating with business and industry in improving the quality of education for students in both academic and occupational areas. In Colorado

fair to say that, at this point, it is the conceptual base for all successful work/study programs which are in existence.

Let me tell you something about the benefits which the program has for the major partners--the students, the employers, the educational institutions, and of course, society at large. For the students, many studies have shown that cooperative education contributes to the clarification of career goals. It adds to confidence in career choices, to persistence to graduation, to improving academic performance and to the development of interpersonal skills. We've heard a lot of comments this morning about students lacking these skills. Cooperative education helps to motivate students for study and work, and it adds very greatly to personal maturity. Work is a very maturing experience for young people. There is one other benefit which I should mention. With the increasing cost of education, the student's cooperative education earnings are a form of self-earned financial aid. I will quote some figures to you in just a moment. I think you will see that it is a very important and impressive form of financial aid. At Northeastern, it covers not only tuition costs of the students, but a great or a significant portion of the room and board costs, also.

For the employers, cooperative education provides a medium for the recruitment and retention of employees. It permits evaluation of potential future employees for full-time, permanent employment under actual performance conditions. It

allows some savings in recruitment, training and labor costs, and it has the less tangible benefit of increased communication between the work place and the classroom. The universities, of course, have a valuable link to business and industry which enables them to explore mutually the relevance of the educational activities. They also benefit, obviously, from the student's ability to have their earnings cover the tuition expenses. One shouldn't overlook that, when there is extensive commitment to cooperative education, the system allows a very efficient utilization of the physical plant because you can have two classes using this plant at the same time. You also have, as we notice at Northeastern, a generally more motivated and mature student body which gives a more serious atmosphere to the whole campus.

For society, I think that the overriding importance one can see for cooperative education is the potential for matching the nation's manpower needs with appropriate educational delivery services. The model, at the same time, enlarges the pool of trained manpower and, of course, provides increased access to higher education for socially and economically disadvantaged people. Another very important aspect as far as society is concerned is that, through their cooperative education earnings, the participants, namely the students, contribute directly to the federal and state treasuries in the form of taxes. I will give you some figures which, I think, will amaze you.

With these advantages of cooperative education becoming apparent to institutions, the number of programs has increased quite significantly. A decade ago, less than 100 instutitions offered cooperative education programs. This number has now grown to well over 1,000, which is just about one-third of all the institutions of higher learning in the country. At the same time, however, the total number of post-secondary students involved in the cooperative program remains relatively small; that is, about 2 percent of all college students. This indicates, obviously, that the programs at the 1,000 institutions having some for of co-op are sometimes in very limited areas only. Thus, a few of the institutions such as Northeastern, Drexel, University of Cincinnati, Rochester Institute of Technology, Antioch College, and a few others dominate the utilization of the co-op. The statistics for the nation's co-op students are nonetheless very impressive. Totally, one can estimate there are about 220,000 of them. They are working for approximately 100,000 employers which include some of the country's foremost corporations such as General Motors, Ford, IBM and so on, and over 30 agencies of the federal government. Total students earn about $1.1 billion in cooperative jobs, and $30 million in taxes. These are impressive figures.

Northeastern has, on an annual basis, 10,000 cooperative education students, which is about 5 percent of the total number of co-op students in the country. The average

annual earnings are about $6,000, which gives a total, if I can still do the arithmetic, of $60 million. The taxes they pay is about $4 million a year. Since a large fraction of these students is employed in the Commonwealth of Massachusetts, cooperative education plays quite an important role in the state's economy.

How does the model operate? I am not totally conversant with all variations of it. I can tell you, very briefly, the way it works at Northeastern. It elongates the study process by injecting the work component. Thus, Northeastern's model is based on a five-year program at the undergraduate level, of which the first year is devoted to full-time study on campus. The four upper years then are devoted to alternating three-month work and three-month study periods. We operate on a quarterly plan. When one division is at school, the other one is at work. In this manner, eleven quarters of study are intertwined with eight quarters of work, which is approximately two full years of work experience for the student. In all of our colleges participation is mandatory, with the exception of the college of arts and sciences.

We also have a variety of graduate cooperative education programs. Time does not permit me to tell you much about them other than to say that they differ significantly from the undergraduate program which I have just described in the time frames which are involved and the length of work periods. I will mention one program at the doctoral level in which students

spend one full year in a so-called collaborating laboratory on the outside. This is in the chemistry department. It's a very successful program which has had a lot of national publicity.

With the increasing acceptance of cooperative education in the past ten years it has, of course, also enjoyed federal support. During this period, about $140 million have been awarded under Title VIII and various precursors under the Higher Education Act. Since 1980, about 24 institutions receive large grants in the range of half a million to one million dollars for planning major commitments to cooperative education. Again, this is an indication of a continuing growth of this program.

I think it would be less than honest of me, having painted a picture now which sounds so ideal that you begin to wonder why not everybody uses cooperative education, not to indicate some of its problems. Problems is perhaps too strong a term, but there are certain difficulties. Some of them afflict new programs. It takes a lot of experience and insight, well-trained staffs and adaptations in order to operate these programs. Many of the fledgling institutions lack this kind of expertise. What is necessary for a cooperative education program to be operated successfully has been shown by a number of studies. One factor is a strong institutional commitment from the administration. There has to be faculty support, and that's by no means easy to get because there are certain well-ingrained attitudes which don't see work and study mix. This is strange,

but true. One has to mobilize employer participation. One has to articulate the cooperative concept to secondary schools and community groups, and above all one has to have flexible attitudes about the curricular time frames.

At establishe co-op institutions there are also certain shortcomings which I might mention. For instance, the connection between the work and study is not quite as strong as the idealized definition which I gave you would imply. I'm a professor of chemistry and I can assure you that it took years until I even realized that we had a co-op program at Northeastern University. I just saw students disappear for three months and then come back, looking a little bit older. Thus, faculty involvement in the program is by and large quite weak, even at major co-op institutions such as ours. It is a fact that the academic programs we have are quite normal and traditional. A number of factors contribute to a reluctance to be different, not the least of which, I guess, is concern about peer institutional rejection. That is to say, concern that other institutions will thumb their noses at you if you start fooling around with your program.

Well, I think I've given you a flavor of what cooperative education is about. There are a number of recommendations which I would like to make to the Commission. In their ultimate recommendations I urge the Commission to bear in mind the advantages which flexible time frames in post-secondary education hold. If we marry ourselves to the four-year time frame which is

traditional, it's going to be very difficult to adapt yourself to changing situations over the long haul. I would also like to see an increased awareness of cooperative education. Although there are a number of commissions and bodies, professional organizations which are working toward this end, I believe that an endorsement by the Commission, perhaps indicating the favorable aspects of cooperative education, would be very appropriate. An endorsement, also, of continuing federal support for co-op programs is important to provide other institutions some help in getting started with training activities and initiation plans. Above all, and here I think I'm falling into line with many of the previous speakers, it is crucial to bear in mind the great importance of attitudes and motivation in work and study. If we overlook this aspect, I think that we are missing the major point of what cooperative education is all about. Thank you.

MS. CAMPBELL: Thank you. It's been a very interesting presentation.

Don Schwartz.

MR. SCHWARTZ: Thank you very much and good afternoon. I'm Don Schwartz, Chancellor of the University of Colorado at Colorado Springs. We are one of the three general campuses of the University of Colorado system. The university itself was established in 1876 by the state constitution, so we are a constitutional body as opposed to one by statutes. In 1972, voters approved an amendment to the constitution that established

the University of Colorado at Colorado Springs and Denver as state institutions of higher education under the Regents of the University of Colorado. The University of Colorado also includes the Health Sciences Center in Denver. I am also the Colorado State Representative of the American Association of State Colleges and Universities, a national group that includes over 350 four-year state colleges and universities. It is in this dual capacity, both as a representative of AASCU and chancellor that I address you this afternoon.

The scope of AASCU can be more fully appreciated when you realize that in the 1979-1980 school year its member colleges and universities throughout the country granted 67 percent of all the baccalaureate degrees in this country, 63 percent of all the master's degrees, and 63 percent of all the doctorate degrees in 25 major fields of study. In Colorado, AASCU universities and colleges include the University of Colorado at Colorado Springs, the University of Colorado at Denver, the University of Northern Colorado, the University of Southern Colorado at Pueblo, Adams State at Alamosa, Fort Lewis College at Durango, Mesa College at Grand Junction, Metro State College at Denver, and Western State College at Gunnison. Three of the nine AASCU institutions in Colorado are commuter campuses, having no official housing for students on their campuses. This doesn't mean, however, that students on those campuses, like ours in Colorado Springs and Denver and Metro State, include only residents of their

immediate environment.

At the University of Colorado Springs we have, in fact, students from nearby cities and towns. They have obtained housing in the Pikes Peak area where they reside while attending classes at our campus. From 8 to 12 percent of our enrollment has traditionally come from out of state. I will confine my observations on comments on the role of post-secondary education in preparing for students for work to my own campus where I have been Chancellor since 1978. It is important that I do that because, first of all, I represent a wide diversity of institutions in the state. I also represent a wide diversity of institutions across the country. I will make no formal recommendations. However, when I present the scenario of my own institution, I'm sure that you will have many implied recommendations in that scenario.

For the sake of this discussion as to the role that UCCS has played in fulfilling its role of meeting the educational requirements of its area residents, I believe it's very important to give you some background of the institution since it is a rrelatively new institution and one that is not well known nationally. The University of Colorado began offering courses in Colorado Springs in 1925 through its extension division primarily in the area of education. Courses were aimed primarily at the mature student interested in acquiring new skills or sharpening old ones. The Colorado Springs Extension Center was

formally founded in 1955, in one room, then in a high school building. The center grew as demand for classes increased and in 1964 the Cragmor Foundation, then operators of a large tuberculosis sanitarium, gave its assets to the university. The grounds and buildings became the locale for the Colorado Springs Center in 1965. Earlier, the university's Board of Regents approved the granting of resident credit for degree courses offered at the Colorado Springs Center, and in the same year the university acquired the Cragmor property, jurisdiction of the center was moved from the extension division of the university to appropriate schools and colleges at the Boulder campus. These were the College of Letters of Arts and Sciences, the School of Education, the then School and later the College of Business and Administration, and the College of Engineering and Applied Science.

As we go about our business of responding to the educational needs of our students, we do so on a campus that now includes more than 400 acres and has seven schools and colleges offering courses. In addition to the ones I mentioned earlier, we also have a Graduate School of Business Administration, a Graduate School of Public Affairs, and a graduate school. We offer undergraduate and graduate degrees, bachelor of arts, bachelor of science, masters of arts, masters of science, masters in business administration, and master of public administration. Everything we offer is not only accredited by

the North Central Association of Colleges and Schools, but by the appropriate, professional accrediting agencies.

The University of Colorado at Colorado Springs today represents to me an example of the university in the right place at the right time. We're an urban institution. We serve its commuting students of all ages, with a wide variety of interest and needs. When the University of Colorado began its operations more than a hundred years ago, the enabling legislation said the objections of the University of Colorado shall be to provide the best and most efficient means of imparting to young men and women in equal terms a liberal education and thorough knowledge of the different branches of literature, the arts and sciences, with their varied applications. The objects of more than one hundred years ago are still the same at all campuses of the University of Colorado, but there's one major difference. No longer is the educational process directed only to young men and women in equal terms. Rather, today higher education throughout the University of Colorado system particularly at its urban campuses in Colorado Springs and Denver is available to students of all ages, from those in their teens up to and including students in their fifties, sixties and even in some instances in their seventies.

To give you some idea of the student mix at UCCS, let me share with you some statistics of our student body which is approximately 52 percent female, 48 percent male. Our student

body encompasses far more than just the recent high school graduate. We serve the adult who has been at work and the student who for one reason or another, never had the chance to pursue higher education. We serve the student whose professional skills need sharpening or who's seeking a second and, in some instances, a third professinal career. Another group using UCCS are those retired persons who wish to continue active participation in the community in which they live. There are others. The housewife, whose higher educational opportunities were limited by the duties of their home, and the military person who is seeking additional skills and education. Less than 20 percent of our students are under 20 years of age. Twenty-three percent range from 21 to 29, and 33 percent of our students are in the 30 to 49 year-old bracket. Nearly 3 percent of our students are 50 years old or older, and the average age of our student body is 28.5. So, you can see that our student body mix is a far cry from what we usually associates with a typical residential college or university campus, and I am sure that the figures I cite for UCCS would be matched at the other urban, non-residential campuses in Colorado, and probably pretty close to the nation's average.

This change in the university's clientele, so that learning is more of a lifelong experience, is a development that, to my mind, marks the beginning of what I refer to as the fourth great era in higher education in this country. The first era,

from 1636 to about 1861 saw higher education reserved exclusively for the wealthy and sons of ministers. It was elitist, classically oriented, and designed for the aristocracy. From 1861 to 1941, prior to World War II, the era of development of state universities and land grant colleges saw enrollments grow and professional competence expand, but the clientele was still somewhat limited. Only one out of eight high school graduates ever went on to higher education at the close of that era. Today it's closer to one out of every two high school graduates who continue into college and university work. Impetus for this dramatic increase and the inception of higher education's third era came, of course, from the GI bill at the end of World War II. The launching of Sputnik in 1957 propelled higher education in this country to unparalleled heights of support and further impetus for expension came with the social progress of the '60s and '70s when enrollment of minorities was expanded. Black studies was introduced and problems such as equal access and affirmative action were tackled.

Now we are entering the fourth era of higher education, the era of the urban university meeting local needs, solving regional problems, and providing life long educational opportunities for our clientele. As an urban university in the Pikes Peak area, UCCS responds to the requirements of her clientele. Classes are scheduled six days a week and held during the day and evening. This provides maximum flexibility to

students in planning their educational and employment activities. Of the more than 5,000 students enrolled last fall in our programs, approximately 75 percent were employed. It is estimated that 60 percent of that group were employed full time, and yet 55 percent of our student body were full-time students. About 35 percent of our students attend classes only in the evening, from 5 o'clock to 11 o'clock. As some of you probably know, Colorado Springs and the Pikes Peak area form one of the fastest growing sections in these United States.

Thirty years ago when the university still was offering extension courses, the population of El Paso County and Colorado Springs was less than 75,000. Today that figure surpasses 330,000 and the area continues to attract more and more people. The growth in population has triggered dramatic changes in the character and personality of that area, changes that have and will continue to affect the university in its effort to fulfill its role in preparing post-secondary students for work.

Once dependent primarily on the tourist industry, Colorado Springs underwent a major change in the '40s and '50s with the addition of sizeable military installations. The presence of these Army and Air Force bases, and their complements of troops and dependents, brought much pressure to accelerate the development of educational programs at the local level. This military impact continues to grow today. Earlier this month we were in attendance at the Air Force activated its

United States Air Force Space Command in Colorado Springs. This is the forerunner of the establishment in the area of another large military installation.

Colorado Springs is also in the midst of another major alteration to the character of the community, a change whose impact is just beginning to be felt, but which will continue to affect the area through the '80s and far beyond. A major influx of electronic and microprocessing companies, coupled with the expansion of similarly oriented businesses already, are located in Colorado Springs, and they provide Colorado Springs with an industrial base it never had before.

As the character of the community changes because of the advent of these companies, UCCS is faced with increasing demands for courses in the areas of engineering and business. These demands undoubtedly will continue to grow as more and more companies in the electronic fields and allied industries focus on the Pikes Peak area as the location for new or expanded operations. We will respond to these demands and needs within the limits of the resources available to us, but I want to emphasize that we do not intend to become a technological college or a business school. The mission and goal's statement of the University of Colorado at Colorado Springs as a comprehensive, masters granting university as set forth by the Colorado Commission on Higher Education reads: At the baccalaureate level, the Universty of Colorado at Colorado Springs will continue to

emphasize a broad range of liberal arts and sciences and its approved professional programs in education, engineering and business. Existing master level programs shall be continued. Additional masters level programs may develop as the need for such programs in the service area is demonstrated.

In accordance with that mission and goal, and in response to community needs, the university has added in recent years a number of new degree programs: computer science, physics, chemistry, and anthropology. During the past year our campus dedicated a new microelectronics laboratory for the College of Engineering and Applied Science. The development of this facility, valued at approximately one million dollars, was all provided by private industry except for $30,000, and this puts us as one of the four or five institutions with such a facility.

Today we are in the process of developing other new programs at both the undergraduate and graduate level in response to growing demands of a growing student body. For example, the ability to read and write computer is quickly becoming one of the mainstays of a college education. Computer literacy for all students is one of our goals. In fact, I can see the day coming when such a program in computer literacy might become a requirement for an undergraduate degree just as much as English composition. In fact, as was reported last spring in the Chronicle of Higher Education, there already are several institutions where computer literacy is now required for graduation.

Steven White, Director of Speical Projects for the Alred P. Sloane Foundation, said that the idea that all students should be acquainted with the computer in some reasonably respectable fashion is surely no more radical a thought than the proposition that they should be able to read and write.

Let me repeat that UCCS is not now and will not in the future become so heavily oriented to business and engineering that its appointed role as a university in every sense of that word is diminished or lost. UCCS does indeed offer the world of learning, the world of education, the world of scholarship, and that's what a university is about. I'll end there and I will be very happy to answer any questions that you may want to ask. Thank you for the opportunity.

MS. CAMPBELL: Thank you very much. I wonder if we might take time for just a couple of questions.

Arly?

MR. FOSTER: I've got two questions, Madam Chairman. Dr. Stewart, I was visiting not long ago with the Deputy Superintendent of Schools in an inner-city system. He told me that they were debating whether or not they should drop their investment in vocational education. The cost of the equipment, the obsolescence of the equipment was such that it was just one of those things that was on the budget which was being restricted. Could they justify maintaining it. He also spoke about the fact that they had one vocational course on plumbing and they took

this plumber on the teaching staff. The plumber couldn't teach. He was a good plumber, but they had to send him to school to learn how to teach. This was expense that they thought they could get along without. His proposal was to go along with this, scrap it, and go to industry and have industry get incentives in the form of tax breaks to let the students come to get their experience on modern machines in the plants nearby. I've heard from others that vocational tools, equipment and machines are a problem in these days of restricted budgets. Is his answer a good one? Has it got much application elsewhere or is it local?

DR. STEWART: There are several components to this question and I'll try to address them and be fairly brief about it. One component in terms of his partial solution relates to the concept of cooperative education. Cooperative education is a method of delivery of vocational education. The other part of his problem, and I think we will see this faced in other schools, too, deals with decreased finances. The problem of financing and keeping up-to-date equipment has been addressed in our paper. This is a valid problem and concern.

Now, within the vocational education context, the cooperative education that we're involved with is supervised by a teacher. It is a part of the school program. Students do receive related instruction at school. The cooperative aspect of the program involves willing and cooperative businesses that lets students utilize equipment and work with people to gain

skills on the job that are not provided at school. Most often, the cooperative method has been operating in the marketing education area where students have related instruction in class in school for two hours and then they'll be on the job for three hours in a business. This concept is available to other vocational areas. I've been working in agriculture. We have a cooperative component in agriculture with the businesses. Students receive related instruction at school, although they do receive some instruction in the business.

I think we should not give up on the fact that there are some things that we can do at school more efficiently. Sometimes it would be more efficient and cost effective to have industry bring equipment to school and provide instruction at school to minimize the time in the plants.

Now, I didn't address the matter of certification, either, and certification is another factor. Do you want to puruse that a little bit?

MR. FOSTER: If you would.

DR. STEWART: Certification in vocational education varies somewhat among the states, but, and it's true particularly in the trades and industrial area, competent practitioners may be certified on the basis of their work experience with minimal educational course work. In our particular state we have a two-week special institute that new teachers are enrolled in after they obtain a job. They receive a two-year certificate which may

be renewed until they complete 20 hours of professional education course work, then they're eligible for five-year renewable certificates. The renewal is based on other types of in-service education and work. With the special training programs, we are relatively successful in retraining these teachers although there is a fairly large turnover. But in vocational technical education this is a partial and a real solution of having technically competent people for it is important to have people teaching what they can do.

MS. CAMPBELL: I think that's true of many states that do and have made accommodations for certification in such a manner.

Emeral, we'll take one more.

MR. CROSBY: I see we're about to run out of time so I'll direct this one to Dr. Stewart. Coming back to what Foster said, if we had a plumber that couldn't teach maybe we should send a teacher out to let him or her learn plumbing and then put them back in the classroom.

I'm just wondering if most of the complaints that we hear about our youngsters not being prepared to move into the work place are coming from large corporations where perhaps the worker relationship is informal, or maybe I should say formal, where it's rather distant and they're not getting that close supervision. I know we frequently listen to the large businesses and so forth in terms of setting the standards, but I believe

somewhere in the statistics, the greater portion of the work force is actually in small businesses which may hire less than ten or fifteen people. Are we listening to the wrong people all the time? Sometimes when I go and look at some of these high technology things, only Ford or IBM or somebody else can afford them. The little businessman down the street that hires one or two people cannot. The other thing is do you have any recommendations on how you would apply that employer tax to support vocational education?

DR. STEWART: This is a concept and I think I'd like to keep it in the context that, number one, it's important to hav a federal thrust for vocational technical education. The two suggestions which were made are a bit specific, but we were trying to think through ways that we might address different ways or different types of funding. So yes, I would suggest it might be a bit complex, but the basic principle is to try and get the beneficiaries of the program to help support the program. There might well be other ways to do it, but I guess we would hope that maybe there could be some very creative way to get this industry/school cooperation going to provide a better education in this area of vocational technical education.

MS. CAMPBELL: Gordon?

MR. DICKINSON: Madam Chairperson, if I may respond to Mr. Foster's question concerning the vocational cost within the secondary school systems, which is a very real problem. We have

responded to that in Colorado by contracting with area vocational schools in local school districts, which I think is a possibility along with the work cooperation concept in that you'll have an area vocational school that may be contracting with five, maybe ten school districts. Students will be brought to that complex and therefore the facilities will be used both in a secondary and post-secondary program. It's allowed us to put a lot more money in vocational programs for the use in all of the areas.

MR. FOSTER: I see, thank you very much.

MS. CAMPBELL: Thank you very much. We appreciate your appearance and your presentations and again, there are a number of questions to be raised. We hope to take time to examine those ourselves. We want to say thank you for coming to this meeting today.

I wonder if we might proceed with testimony from members of the public in the audience. There are ten people who hav indicated an interest in appearing before the Commission members. We have five minutes for the testimony and I'd like to call five names and ask you to come up and take seats at the table. Perhaps we can save some time by doing that.

Patricia Breivik, Director of the Auraria Library; John Dromgoole, Director of the National Commission on Cooperative Education; Fairh Hamre, representing the National Association Sector of School Principals, Vernon Broussard, of the National Advisory Council on Vocational Education; and

David Terry, the Assistant Commissioner for Vocational Education in the Utah System of Higher Education.

We'll start with you, Patricia.

MS. BREIVIK: Thank you. I'm here representing the Association of College research Libraries, but would like to use different credentials; that is, that I stand before you as an educator, a librarian and the mother of an only son who just started college this year. What I want for him I want for all children, an education that will prepare them not for today--which is all too soon over--but for all of their tomorrows.

To live effectively is to live with adequate information. Never has this statement been more true than as our country moves to the "post-industrial society" as described by Daniel Bell, who suggests that societies presently evolving in highly industrialized areas are increasingly characterized by a service-oriented labor force focused on interactions between persons rather than between people and nature or people and production.

Currently in the United States, almost 50 percent of the labor force is employed in some form of information activity. One-third to one-half of the gross national product is attributable to the production, processing and use of information. One-third of all personal consumption is allocated to information goods and services. Information is becoming recognized more and more as a commodity, a resource to be developed, controlled and utilized.

As such, access to timely, accurate, well-organized information is the key to effective decision making, allowing those with the means, know-how, and ability to acquire needed information and to benefit from the results.

In response to this need education must do more than pay lip service to preparing people for life-long learning. It must move from teaching what is known towards teaching the process of locating and utilizing informatin as the need arises. Students must acquire the skills and capabilities that will be demanded in an information society. They must become effective information consumers.

One aspect of this need is being addressed by the growing number of programs on computer literacy, but computer literacy is a very small subset of information literacy. The skills necessary to be effective information consumers include several elements. First, students need to be reinforced with the concept of the importance of information for daily living and realize that many problems and situations can be solved by the proper acquisition and organization of appropriate information. Second, they should be introduced to the concept of information acquisitions; that is, search stretegies. Third, they should be introduced to a numberof information resources, both the traditional and the computerized, as examples of the variety of resources available. Finally, and most importantly, they must be shown methods of evaluating, interpreting and understanding the

information they have gathered.

In Colorado this past May, a commitment to information literacy was made with the endorsement of a Colorado Academic Library Master Plan by the Colorado Commission on Higher education and the State Board of Education. In the plan one of the goals is directed at guaranteeing every college graduate a minimum level--I know you are interested in maximum levels, so forgive me--of information competency. In addition, the Commissior will be cooperating with the academic libraries in the state to sponsor a conference on integrating libraries into the educational mainstream as a first step towards this goal..

Fortunately, unlike most major new endeavors in education, the manpower, or ladypower, is already largely in place to launch an effective and comprehensive program to help students become effective information consumers. School and academic librarians are in a unique position to aid their institutions. With the exponential growth of information resources in all disciplines and the availability of technology for storage and rapid retrieval, librarians have had to become increasingly adept at managing information. These librarians, in conjunction with classroom instructors, can mount effective programs of information literacy.

Studies have shown that all too frequently when people have an information need they ask a friend. And unless one is unusually rich with one's friends from all different professions,

the end result is usually shared ignorance. This predilection must be overcome by planned educational programs to produce effective information consumers. I hope that the Commission will do everything in its power to encourage the promotion of information literacy as a necessary element for excellence in education. Thank you.

MR. DROMGOOLE: I am John Dromgoole, and I am one of the Directors of the National Commission for Cooperative Education. I think you for this opportunity, having traveled 2,000 miles from our office in Boston, from which we try and service the entire country. Your schedules have been hectic over the last year, and mine has been similar. I have just finished visiting nearly 200 colleges and universities that have been interested in cooperative education because they felt that the curriculum needs more relevance. They're beginning to listen to their colleagues. They're beginning to listen to the public. They're listening to the government, finally, and the government has been kind enough to award us a grant to travel throughout the country to assist colleges and universities in developing and planning cooperative education programs.

One of my colleagues, Dr. Karl Weiss mentioned earlier that experience and insight are needed to develop a healthy cooperative educational program. I'm sorry to say of the thousand cooperative education programs, at best, 200 of them are healthy. However, I think you have to design a program to meet specific

needs of colleges and universities and if you're meeting those needs, far be it for me to describe what is healthy.

The University of Colorado at Boulder, while visting with them yesterday, suggested that they would like a very nice, small program. They do not feel they need a large cooperative educational program and I think that's fine and our staff is available to travel throughout the country to help the schools like the University of Colorado develop those programs.

One of my comments and one of the favoriate phrases I've seen is that higher education has been too much a mirror and not enough a beacon, and I think cooperative education is one of those dynamic alternative programs that has arrived. It is a beacon program. Planning in cooperative education has been too much a "Ready, Fire, Aim", instead of ready, aim, fire. So we are available as experts in consultation process, in marketing, in indexing which programs are going to be successful.

After 15 years of directing programs, I have a staff available to go out and work with the colleges to make sure that the in-house faculty can work with the program and develop something that's reasonable and will fulfill their expectations.

It is my job to capitalize on the increased awareness of citizens on the U.S. that the curriculum needs general education, but sorely needs relevance. Co-op is a dynamic alternative to traditional educational programming. If an institution wants to study the development of large scale

programs of cooperative education, I would like to hear from them and from you as individuals. The Office of Education has awarded my organization funds to visit with you. We can travel throughout the United States to interact with presidents, deans and faculty and business organizations. Workshops will be held throughout the country. We're holding them in five major locations--San Francico, Seattle, Denver, Chicago, Boston and Tampa. Advertisements will be seen throughout the literature, including the Chronicle of Higher Education, telling colleagues where they can get in touch with us.

Research suggests that change in higher education only takes place when there is trauma, severe trauma, and I think we are now seeing this. Lon Hefferlin wrote an interesting book several years ago, Dynamics of Academic Reform, and he said let's not fool ourselves. After studying 300 universities, we find that only when the president or chief executive officer of the institution demonstrates personal advocacy for the program does change take place; that is, finding number one. Finding number two is that virtually no change takes place when you allow the university to do it themselves. Outside agencies bring about change in universities and commissions like this are a big help. Third, if you haven't changed in the past, you probably won't change in the future.

So with that in mind, I am offering the services of the National Commission and all of our staff to assist any and

all of you in planning, developing, implementing and evaluating cooperative education programs. I appreciate this opportunity.

MS. CAMPBELL: Thank you very much, John. We appreciate those words.

Faith?

MS. HAMBRE: Chairman Campbell and other Honorable Members of the panel, thank you for allowing me to speak to you on three brief subjects, the first of which is that all popular, ever talked about middle level student; the kid who is given to public education and said, "Just civilize him." I am a member of the National Association of Secondary School Principals Middle Level Council, and am Executive Director of Secondary Education for the Littleton Public Schools. For those of you who aren't familiar with Colorado, Littleton is located in the southwest metropolitan area.

First of all, I would like to share with you some good things that are happening, because frequently problems are brought to your attention, but we don't share with you those positive things that are occurring. During this past year, the Middle Level Council has sponsored three conferences in the United States; one in Seattle, one in Chicago, and one in Hershey, Pennsylvania. In those conferences we shared recent research concerning learning at the adolescent level. Principals from throughout the United States also shared what they are doing to create quality education at this level. Rather than have middle

level education be a holding ground between that important elementary level and the very important senior high level, we are creating an important learning environment for students who are at a very crucial time in their lives.

I want to share with you some of the things that we talked about and shared at these conferences because I am proud not only to talk in general terms, but to give you specific examples of things that are happening. In the Littleton Public Schools you will find these are in practice or are in the planning stage to be implemented.

First of all, the teaching/learning cycle or clinical supervision, ala Madeline Hunter, is very appropriate to education, K-12, but it is specifically most appropriate to middle level education. We have found that even more important than what we are teaching, how we are teaching at the middle level makes the difference in quality education.

Secondly, understanding of brain growth development, along with appropriate packaging of learning methodology, objectives and materials for most effective learning outcomes for kids this age has been promoted.

Thirdly, we have shared with our people research in learning styles that makes it possible to create an appropriate learning environment even within a wide range of learning variables at the adolescent level. Let's be specific. The kid who has to sit and wiggle frequently sits next to the nice,

quiet fellow. They both have to learn the same thing at the same time. Teachers very frequently utter in frustration, "But how am I going to manage this?" Learning styles have been a very helpful answer in doing a better job.

I would like to point out to the panel at this time that the research for all three of these very important steps in methodology and improved instruction at the middle level came from research at universities in the United States. All three of these instructional research areas are on our staff development program in the Littleton Public Schools during our five-year plan to improve education at the middle level.

We know that methodology isn't the only answer to improved education, and a basic skills continuum K-12 to provide an appropriate transition of learning from elementary grades on to graduation. Also, our district is very pleased at the healthy increase in community volunteers at the junior high level. Just as parents of adolescents tend to say, "Oh, now what am I going to do with that kid?", they also tend not to come to school at the junior high level right at a time when kids need their parents and parent involvement more than ever. We have made a start and are continuing to work on ways of improving community involvement in Littleton.

We are teaching study skills. We are increasing business education at the junior high level, and are even working on fine arts in an effort to work on the civilizing of the

adolescent.

As I have been presenting this to you, I'm sure you're sitting there saying, "Well, fine, you may be making these efforts." The importance of my examples are that they represent many districts throughout the United States. My work with the Middle Level Council has convinced me of that. I just happen to be very proud to be part of the Littleton public school system.

Now an example of broad range involvement and concern. Just two days ago, I picked up the minutes of a meeting that was held between the junior high administration and district bus drivers, and quote from that reading and if that isn't proof that it's working, I don't know what would be. A request came from the bus drivers to the principals that they continue to send the newsletters to the bus drivers, "Because those kids do so many neat things, and if we can pick up on those and say something to them (the kids) first thing in the morning about how proud we are, I think they'll be able to learn better during the day." And I'm saying, if the bus drivers are involved in education, we've got everybody involved. I think it's terrific and I wanted you to know about that.

The second item I would like to share with you very quickly is that the National Association of Secondary School Principals has worked very hard to cooperate in getting two bills before Congress. One is House Bill 6774 and the other is Senate Bill 2738. Both are aimed at involving industry in

improving the quality of teaching in science and math areas by providing teachers summer employment and allowing those industries tax credits for doing this. It also, of course, would mean that maybe some of the people who are turning to industry to work for financial reasons, could stay in teaching if they had summer employment that was worthwhile. One of the other aspects of those bills, of course, is to give low cost loans to people who do want to go into math and science teaching. I hope everyone will feel that they want to support this effort. In our own district, we also have proposed that the district engage in a program that would involve re-training of teachers who teach in areas where we don't need them as much and who have proven to be good teachers. We know they can do a good job. We want to give them the necessary subject area skills.

This is an effort to do something without looking to the federal government for support. The Littleton public schools also cooperatively provide vocational education. Along with the Littleton public schools (Arapahoe Community College), the Cherry Creek public schools, the Sheridan public schools, the Englewood public schools and the Douglas County public schools, they have joined forces a few years ago to provide vocational training in many areas that each district could not provide on its own: auto mechanics, cosmetology, restaurant arts, computer technology, graphic arts, for a total of 27 programs. This is one more way that we can have quality education without going to

the federal government and saying, "We need more money."

Now, in closing, I must state that there is much quality in public education. I hope you will continue to emphasize quality. We need many people saying that quality is important. It isn't something new or fadish. It is just plainly important! Then I hope that in speaking for quality we will look to districts who are doing a good job in areas, commend them for that, and build on that. Then, whatever involvement the federal government might have, I do hope that districts who are doing a good job won't be asked to eliminate what they are doing in order to do it another way in order that all will do it alike.

Finally, I also hope that we will not ask the federal government to reward districts who are doing a very poor job by providing money to do something that another district has somehow managed to find the money to do. Yes, some districts do need more help than others, but I think every financial reward should be accompanied by an initial effort on that district's part first.

Thank you very much. I'm very proud to be a public educator.

MS. CAMPBELL: Vernon.

MR. BROUSSARD: Thank you very much, Madam Chairman. On behalf of the President's National Advisory Council on Vocational Education and its chairman Miller, and we do have one other council member present who was introduced this morning, Mrs. Gladys Eddy. We are very pleased to have this opportunity

to represent the National Advisory Council, and to appear before this very vital and important Commission to our nation's future.

First, we will be submitting for your consideration a full position statement from the National Advisory Council on or before the 16th of October for your consideration.

For now, just a few brief statements. I think that what we have heard today, and what we concur in, is that there are profound economic, social, psychological and technological conditions that have outraced our educational system, including its vocational educational component.

Secondly, we believe that learning under conditions of rapid change, which many futurists believe will accelerate, requires us to move back and forth between theory and practice, between classroom and community faster and more frequently than ever before. Failing to measure our extractions and those of our children of our nation often against reality increases the likelihood that they will, indeed, be false. In most of our universities, and I'm a member of the faculty at the University of Southern California, colleges and secondary and elementary schools as they are presently organized today, are designed to construct or transmit abstractions rather than to test them. I think that there are some notable exceptions such as the program description you heard from Northeastern University, but also some very fine cooperative programs in vocational education.

This is why we feel that we must accelerate the trend

now, according to Toffler, in the "preferrable future" in our secondary schools and elementary schools, to offer credit for reality learning done on and off campus through participation in real work and business, both public and private, high technological industries, and traditional "second-wave" industries, community, political organizing, pollution control projects, and similar kinds of productive, interdependent activities.

We believe that our nation's vocational educators have provided the leadership and expertise in this area in the past and are our greatest and perhaps only national resource for future efforts in this vital area of sampling reality through cooperative, experimental, educational programs.

We believe that the National Advisory Council on Vocational Education, along with this Commission and a number of other professional groups and agencies can assist in the realization of this significant goal.

Presently, according to some of the research and evaluation studies on vocational education that we have had an opportunity to review, and you may have had that opportunity also, many of these efforts to date are badly organized. They're ill thought through and are regarded by some "academic purists" (myself to some extent), at the university, community college and secondary schools as basically insignificant; simply as concessions to the restlessness of students who no longer want to

remain cooped up in a classroom. We would argue that such efforts now and in the preferrable future, not only must be continued but they must be radically expanded, must be linked imaginatively to formal learning processes, and must be extended downward to younger and younger students in the secondary schools and even to primary school children. Indeed, for older students this "action learning" ought to become the dominant form of learning with classroom learning seen as a support rather than the central element in education.

Vocational educators over the many decades, while not alone in this crucial thrust, have without question provided the leadership and implementation of this needed and future effort.

We believe that this requires leadership and resources from the national level. In this regard, one of the powers which the states have tacitly given the unifying sovereignty that we'll call the federal government, is that of providing vocational and experimental leadership in the nation's schools and colleges.

The National Advisory Council, and we hope with the support of this Commission, other interested agencies, organizations and parties, has a significant leadership role to insure that this is placed on the national agenda. Thank you for the opportunity to appear before you this afternoon.

MS. CAMPBELL: Thank you very much. We very much appreciate the representation from the National Advisory Council.

David?

DR. TERRY: Thank you very much. I appreciate the opportunity you've extended to me, particularly this late in the day.

I am Dr. David R. Terry. As I've been introduced, I'm the Assistant Commissioner for Vocational Education for the Utah System of Higher Education. My particular educational background is in the areas of biological sciences and chemistry, with a masters degree in microbiology and biochemistry, and then a doctorate in vocational education. That's an interesting switch, isn't it? I made that switch because of the problems that I saw occurring in education and wanted to study what vocational education and other kinds of education that are work related had to offer.

May I begin my remarks today by asking you to look with me for just a moment at the very essence of the title of your hearings today, Work and Education. We're here not to discuss with you merely the vocational aspects of work and education, but also that which is work related beyond that which is normally called vocational education, that is at the baccalaureate and levels beyond. We must look at the chemistry graduate and ask what is their knowledge of the world of work as they graduate in chemistry, as well as what is the vocational student's knowledge of work. The engineers' understanding of the essence of work as they leave the engineering college is as important as to know what the diesel mechanic is going to do when they leave education

to go to work.

We hear from industry the call for teachers of basic general education skills who can apply, teach that is, the application of those skills to the essence of work. Yet let me discuss with you the fact that as we look at the development of teachers themselves, we find individuals who go to college and get a bachelor's degree to become a teacher and go into professional teaching without ever having been to work. We find in the post-secondary systems of higher education in particular, peole who have a bachelor's and master's and a Ph.D., or Ed.D., or some other final certificate, and then go immediately into higher education and begin to teach, again having not entered into the world of work outside of education. Now, you ask those English teachers and math teachers and chemistry teachers to make application of their disciplines to the world of work and it's no wonder that they cannot do it because they have not had the exposure to it themselves in their own personal experiences.

My recommendation to you is that we need to find mechanisms in our educational programs, teacher preparation programs, at both the K-12 and post-secondary levels, to find work experiences and make them mandatory for basic general education skills kinds of teachers; English, reading, writing, math and whatnot. We should not have one math teacher teaching out of another math teacher's book and teaching only what the previous math teacher's had experience with in terms of the kinds of

questions the students are asked to solve which may have little or no relevance to the world of work itself. In fact, if you look at the kinds of questions that students are asked to resolve and solve in a textbook, very few have work relationships in terms of actual practicality in the world of work.

Let me suggest to you the findings of my research at a midwestern university which I'll not identify. The university had some 500 students a year entering that student body group as freshmen, intent to work in areas of medical technology, radiologi technology, radiation therapy, physical therapy, occupational therapy, all of which required strong general education skills in sciences, reading, writing, arithmetic, and diagnostic thinking. These students had to prepare themselves by usually the junior year to be formally admitted into their professional program. By the end of the third year of each of the four years I made the study, I found that 80 percent of the students had dropped out or changed their major. In studying where those students who changed majors go, I found 80 percent of them transferred to the College of Education in that university and that their grade points went up measurably.

Now, these students that couldn't in the freshman year pass a basic course in Chemistry 101, 102 and 103, couldn't pass general English, couldn't pass college algebra and trigonometry, did transfer to the College of Education to become teachers of the same or related areas and their grade

we have more than 10,000 students enrolled in vocational education programs who receive part of their training in schools and part in on-the-job training in industry. This is a very successful effort which is being expanded every year and should continue to be emphasized. The students see the skills they are being taught as real and valuable. Another instance is business and industry is providing training equipment to educational programs. The adopt-a-school concept could be broadened and included in such areas as industry providing part-time instructional staff. I would address that possibility particularly in your small rural community college areas.

Education currently cannot compete with the salaries of the private sector and if training is to be provided by quality instructors, which it must be, such arrangements must be contemplated. At the same time education can be more responsive in providing upgrading and retraining as economic changes occur and affect business and industry. Colorado presently has approximately 35 occupational training programs which have been jointly funded by the state board, the Comprehensive Employment and Training Act, through the private industry councils and private industry. These programs have been designed to prepare employees in the energy-producing industries and high technology business. Through interagency agreements such as this, limited resources can be pooled and the impact is magnified in meeting labor demands.

Another example is an experimental program in which job service centers, through the Department of Labor and community college and area vocational schools, job placement centers are joining forces in serving the local communities. Three, we must be willing and even aggressive in bringing change in education to keep pace with technology. In Colorado we have put significant resources into a project to provide computer literacy for every vocational education teacher in this state. In the first year more than one thousand people have participated. That's only a beginning, as the program will be expanded. Hopefully, in the near future all students who complete a training program will have a basic knowledge of computers and their use in the business and industry. Believe me, this is extremely important in the rural areas.

Four, we must continue to emphasize student leadership development activities as an integral part of the training program. The vocational student organizations have a proven record of success in teaching basic fundamentals of successful employment. These skills are essential as we consider the total societal role students will be assuming.

I appreciate the opportunity to make this brief statement to you. I wish you success in your efforts and our efforts to improve the quality of education. Thank you.

MS. CAMPBELL: Thank you very much. We appreciate what you have said. Karl Weiss?

MR. WEISS: Thank you. I also appreciate this opportunity to speak to you because the topic with which you are dealing has been of longstanding concern at Northeastern University.

Many of the previous speakers have described the problems which affect the study/work interface, and what I will be talking about is some solutions to this problem which have been implemented at Northeastern University and many other places for well over 70 years now. First, let me tell you a couple of things about the university. It is a large, urban institution located in the city of Boston. It is predominantly professionally oriented, having programs in engineering, business administration and other professional areas, as well as comprehensive adult and continuing education activities which are conducted on our main campus and at 14 satellite locations in the greater Boston area. We have about 42,000 students totally, about half of whom are full-time students. Approximately 4,000 degrees were awarded last year. About 5,000 graduate students are included in this mix.

The University's distinguishing feature is its adherence to the cooperative plan of education, and over the 70 years that the University has used it, I believe that it has been refined into a very effective instructional mode, as I think I'll be able to demonstrate to you. At this point, the University is not only the largest cooperative educational

institution in the country, but through efforts which we have made to help other people get involved with cooperative education in this country and abroad, I don't think anybody would argue with us being the acknowledged national and international leader in the field at this moment.

What is cooperative education? A number of the previous speakers have referred to it, and always it has been as a solution to some of the problems which have been previously brought forth. There is a formal definition of cooperative education as strategy of education which combines, in a structured way, formal classroom instruction with career-related job experience. It is called cooperative education because it involves cooperation with outside organizations: that is, employers, with the university in the total educational process. In practice it involves an alternation by the students of periods of study with periods of career-related work for which the students receive regular compensation. The job experience and study components are carefully planned in such a way that they obtain optimal, educational results.

Of all the models, and there are a number of them, for coupling education and work, cooperative education certainly looms as the most viable one for attaining clearly defined objectives. It has been extensively tested and adapted to changing conditions over the past seventy-odd years, not only at Northeastern, but at other institutions as well. I think it is

point averages went up.

I submit that we've got to look at what's happening in what I would call the downward spiral of teachers' preparation to become teachers, and particularly in their academic discipline areas. I suggest to you that it is necessary for us to evaluate across the United States in school districts and in institutions of higher education the competencies that teachers in fact have in the general education skill areas if we're to assume that quality education is going to happen. We've got to see if the teachers that are there now, that have come into the system since the '60s and the '70s are, in fact, prepared with the competencies that we expect to have in a quality education program today.

Let me give you just one more example. I worked under a National Science Foundation grant of nearly a million dollars to try to bring about greater cooperation between higher education and industry and business in the state of Utah. The idea was to go to business and industry and ask them, "What are your needs for the people that you employ? I will go to all of the educational institutions in the state of Utah and, as a broker, find whatever kind of faculty or resource you need and we'll bring it to bear on your needs." As we got into the effort a very typical example will illustrate the problems we found most often. A large corporation with five major divisions in the Salt Lake City area asked us if we would broker some programs

in engineering related areas. I went to two universities and brought faculty on board to meet with about fifteen engineers of the company. After some five days of discussion on what the industry needed, one of the engineers from industry said to the three faculty from the universities, "We have had you, the faculty, in our industrial offices teaching us for the last twelve years and you have yet to talk to us or teach us what we need to know. We've learned more in the last five days of sitting down across the table and talking to each other and are better able to commit to you what our needs are, than we have in the last twelve years," which I suggest to you indicates that faculty in our institutions by and large don't know what industry wants or needs. Even though the faculty present seminars and workships and work through divisions of continuing education which offer programs for business and industry, our faculty have not been to work. They don't work in the work place outside the educational system, and thereby, don't know what industry needs.

Now, I've got to close. I've got some more but I'm going to reserve it to one other area. In the vocational areas, you're talking about less than baccalaureate level preparation. I suggest to you that evidence will indicate that the students who go into the vocational areas are by and large those who have low verbal, low reading, and low math skills as compared to either the general curriculum or the academic curriculum students in the high schools. And yet industry, as we have heard today,

says to us we want people who have high vocabulary skills, high cognitive skills, give us people who can read, write and think, and we'll teach them the job skills. I don't agree with that totally, but that's what we hear. They're asking, thereby, for a low cognitive, a low verbal, a low mathematic level person to become, in a high technology field, highly competitive with that academically prepared curriculum student. For the 70 percent of the work force that initially needs vocational skills, that it's not necessary to prepare at less than a baccalaureate level, we're going to have to have some basic education work related teaching skills in the faculties to prepare those less academically prepared students for high technology. To do that, we're going to have to place greater emphasis in those basic education skill area faculty and teach them to relate to the vocational areas and the high technology areas.

MS. CAMPBELL: Thank you very much, Dr. Terry. What you have presented is very important and we appreciate it.

Would Georgia Van Adestine, Gordon Heaton, Young Mulkey and George Rusteiko come forward?

We have to leave promptly at 5 so we're going to be very close to our time.

Georgia?

MS. VAN ADESTINE: Thank you for the opportunity to address the hearing today. I am Dr. Georgia Van Adestine from Western Michigan University in Kalamazoo, Michagan, and as

several of you know who are here today, I have met some of the Commissioners before in previous hearings.

I am here primarily as an observer as I have been before. Western Michigan University has embarked on a new effort this year which I felt was important to share with you and I'll briefly explain why.

When I first began to attend the hearings, I was very excited about the caliber of testimony, the composition of the Commission itself and what I felt was a very timely interest at the national level in education. I was excited because many of us who have watched what has been happening in the past couple of years to public education feel we are witnessing a dismantling, not only of a particular department, but also of a national system of education. To see the interest that the Commission was creating and the issues that were being addressed was very exciting to us at Western Michigan University.

I have heard testimony concerning problems and perceived needs, recommendations and suggestions, but very little evidence of some of the extremely positive things that are happening. We in Michigan are particularly in need of hearing about those things but are also very proud of being able to present evidence of exciting challenges ahead that are being addressed, particularly with the critical situation economically and morale-wise that we are witnessing.

As Dr. Crosby may have shared with several of you, we

hav seen a devastation of our educational system in Michigan over the last couple of years. We recently received the fourth executive order budget cut of over $112 million. We have had over eleven school districts on strike this year, including the city of Detroit.

I am pleased then, to be able to represent Western Michigan University, an institution which is doing something not out of a crisis mode, but very much as part of an improvement process. The College is announcing this week its plan to conduct a year long Education Forum. Although the programs at the College have recently been recognized by NCAA as fully accredited, the faculty and the administration believe it is appropriate and timely to re-examine both undergraduate and graduate offerings and services.

The purpose of the College of Education Forum is to obtain information to assist in charting the programmatic future of the College. That means there will be an opportunity for collaboration in the review of our current activities, the consideration of possible alternatives and suggested recommendations. It's the kind of opportunity that we heard called for at the hearings in Atlanta and in Chicago where we were bringing together those people who hav a vested interest either at the present time or on a long-range basis in education and the people who are involved in training our teachers. We will be holding faculty and student meetings, joining together with our graduates

and representatives of other institutions and agencies as well as other professional organizations. We will start in the fall of this year, specifically in October, addressing issues dealing with "Admissions and Retention, Certification and Entry into the Work World." In November we're going to be conducting our Forum with a focus on "Drawing From the Disciplines," which I hope will address the concerns that Dr. Terry just spoke of.

In January we will be talking about "Education For All the People," because in Michigan where education is a matter of public policy, we have led the way in the past in providing educational programs and opportunities and we will continue to look at those issues. In February we're addressing "Technology, the Media in the Year 2000," and in March "The Professional Education Curriculum and its Configuration." So we will be looking at the scope and restructuring of our present program. And in April, but not because it's the last meeting or least important, "Faculty Orientation and Development," redefining the roles and the skills that faculty will be in need of.

It's appropriate that the College of Education at Western Michigan University joine. in this kind of an effort both with the members of our society in Michigan, but also throughout the state. It is our hope that others will consider and perhaps utilize the model that we are going to be implementing. We believe in this manner the total national education program or teacher preparation, particularly, can attain, to the

betterment of all. We invite your inquiry into what we were doing and as Dr. Goldberg mentioned when he introduced me to some people this morning, I will continue to watch what you are doing. Thank you for having me.

MS. CAMPBELL: Thank you very much. Gordon?

MR. HEATON: Thank you, Madam Chairman. My name is Gordon Heaton. I'm the president of the Colorado Education Association. We are a state affiliate of the National Education Association. I'm going to shorten my remarks here.

The NEA supports vocational and technical education as a major component of education. To be effective, vocational and technical education should be preceded by career awareness and exploration programs. These exploratory courses would be incorporated into traditionally academic courses and into existing industrial and practical education courses. We are concerned, however, that the current administration is moving away from this concept by placing more emphasis on work and less on education, an emphasis which may be good for business in the short term, but bad for the nation in the long run. Obviously, any administratin wants as large a work force as possible, but we in the CEA do not want to see a de-emphasis on educating those who ultimately will be a part of that work force.

For example, the administration is proposing sweeping changes in the child labor rules which we believe would not only be harmful to our children's education, but to the nation's

economy as well. We believe that the Labor Department's proposal to extend the permitted work day for 14 and 15 year-olds from three to four hours, the work week from 18 to 24 hours, and the end of the work day from 7 p.m. to 9 p.m. is not in the best interest of children's basic education. In making these proposals, the administration is apparently stepping up the attacks on public education that earlier launched with elimination of categorical aid and its plan to provide parents with tuition tax credits to enable them to send their children to private schools.

If Labor Department proposals are adopted along with the lowering of the school-leaving age, it will be very tempting for students to leave the schools and enter the labor force without a basic education. This path can lead to subminimum wages, dead-end jobs, and eventual unemployment because the dropout does not have the tools to compete for increasingly complex jobs. It will also be very tempting for some school districts strapped for funds, faced with increasing class size, with students that seemingly are unwanted by the district, to push them into the job market before they have the basic skills to succeed. This could lead to a liberal education becoming the exclusive domain of those who can afford to stay in school. This must not be allowed to happen in public education, for it breeds elitism and classism. We find it strange that the administration should be proposing changes which would entice unskilled students

in today's job market, given the current unemployment rate. We believe the nation would be better served if the administration concentrated on the re-employment of adults, men and women with families to feed and house and clothe, rather than encouraging changes which will further weaken our economy.

It seems imperative to us that the employers of our nation's public school students, business, industry, military must have highly skilled people who can function effectively in this increasingly technical world. The administration, however, is pursuing a course which would severely hamper our schools' ability to provide this type of worker. Revision of the child labor rules, along with other negative administration policies regarding public education make little or no sense when it comes to the economic well-being or the security of our nation. A government's commitment to and investment in public education does not cost, it pays. Take the case of the GI bill. It enabled hundreds of thousands of veterans to obtain a college education following their tour of duty. That education enabled them to get better jobs with better chances of advancement. Those better jobs and advancement paid higher salaries from which the government collected higher income taxes. The money paid out through the GI bill has been more than repaid to the federal treasury while America gained a highly trained work force.

In our opinion, that lesson has been lost on the current administration much to the nation's detriment. As noted,

the National Education Association, the state and local affiliates support career and vocational education. We can also support a strong commitment by the administration to insure that students entering the work force have a basic education, the skills to find and advance in the job they have chosen. We believe that it is in the national interest that the federal government reinstitute categorical aid to those programs which help our young people obtain the skill. We believe this is a far wiser course than having the federal government subsidize private education through tuition tax credits and vouchers while a great public education system starves for lack of funding. Education and work are equally important, but let us not lose sight of the fact that we cannot reap the fruits of quality work until we plant and nurture the seeds of quality public education. Thank you.

MS. CAMPBELL: Thank you very much, Gordon. We appreciate that. Dr. Mulkey?

DR. MULKEY: Thank you. I'm the executive president of the American Institute for Character Education in San Antonio, and the Institute's purpose is to develop and disseminate a comprehensive character education curriculum that classroom teachers from kindergarten through the sixth grade can use to help assist children in developing positive values, improving self esteem, assuming responsibility for their behavior, and realizing the consequences of their actions and becoming better

citizens.

The need for character education, of course, is very obvious with the juvenile crime, the costly absenteeism, the indulgence in drugs and alcohol by even elementary school children, the alarming increase in teenage suicides which ranks third in the cause of teenage deaths, the loss of tax dollars in school facilities to vandalism and the other indications of the deterioration of our moral fiber.

This morning one of the gentlemen mentioned that it was very difficult to keep the curriculum current, to maintain a current curriculum and as a classroom teacher of a couple years ago in the fourth grade, and by the way, Dr. Terry, I'd like to say every Ph.D. should have to go back every few years and teach in the classroom. It would keep them relevant as to what's going on. But in order to keep our curriculum current, we can't predict what the children of tomorrow are going to need, what skills they will need particularly in the academic area, but we do know that they will need to have skills that will enable them to make good decisions and to learn to identify problems and to learn how to work with their problems. One of the things that we feel is very important is that children learn the importance of their own abilities to learn that hard work is necessary if they want to get ahead and want to succeed.

We feel that as teachers, we want children to work well together. We want them to be able to work as a team, but

we want them to cherish their individuality. We realize that there are times when they need to resist peer pressure and we want them to realize that they have those times. We want children to recognize that self discipline is a strength that can be developed by them and used to help them throughout their lives. We feel that character education should be included in your recommendations if quality in education is to become a reality.

Zelda Popkin, an author, said that in a world where anything goes, everything is gone, and we believe that. Thank you.

(The following statement is included at the request of Dr. Mulkey.)

"The need for Character Education is attested by the increase in juvenile crime, costly school absenteeism, the indulgence in drugs and alcohol by elementary school children, the alarming increase in teenage suicides, the loss of tax dollars and school facilities to vandalism, and other indications of the deterioration of our moral fiber. Many theories exist as to the cause and growth of these menacing problems, but fundamentally they are the reuslt of the widespread absence in our young people of a basic moraltiy. This morality consists of, among other things, honesty, fairness, respect for the law, courage, generosity, and respect for oneself and for others. These values and others form the core of the American Institute for Character Education's Curriculum.

"The American Institute for Character Education (AICE) is a non-profit, non-sectarian, tax-exempt public foundation chartered under the corporate laws of the state of Texas with headquarters in San Antonio. The Institute's purpose is to develop and disseminate a comprehensive Character Education Curriculum that classroom teachers can use to assist children in developing positive values, improving self esteem, assuming responsibility for their behavior, realizing the consequences of their actions, and becoming better citizens. The development of the AICE curriculum was made possible through a grant in excess of two million dollars by the Eli Lilly Endowment.

"Schools using the Character Education Curriculum created by the AICE report a marked decrease in vandalism and delinquency, an increase in school attendance and scholarship, and an improvement in student behavior. Three editorials published by the U. S. News and World Report confirmed these reports and cited similar successes in elementary schools in Indianapolis, Miami, Chula Vista, California, and others in Texas, Louisiana, Oklahoma and Wisconsin. Professors from Trinity University's Department of Education who conducted an independent evaluation of the AICE program in Dade County, Miami, Florida, endorsed the AICE curriculum and recommended expansion of the program to other schools.

The Character Education Curriculum easily integrates with social studies, history and the language arts. The

materials are organized into a kit for each grade level from kindergarten through the sixth grade. The lessons in kindergarten through the third grade are bilingual (Spanish/English). All inservice training for teachers using the Character Education Curriculum would be provided by the American Institute for Character Education at no cost to those school districts ordering a minimum of $1,500 worth of materials."

MS. CAMPBELL: Thank you very much, sir. Mr. Rusteik?

MR. RUSTEIK: My name is George Rusteik. I'm a department chairman in Far West Laboratory for Educational Research and Development called Education, Work and Productivity. The testimony that I'm giving is based upon several years of research studies in which we interacted extensively with people in the employer sector of our society. I was pleased to see today the most recent title of this hearing, "Education for a Productive Role in a Productive Society." Your Chairman, when I met with him on campus last march in Salt Lake City, talked about a hearing on Vocational Education, then it became a hearing on Education and Work. Today's productivity-related title adds an exciting sequence and shows progress.

I will be submitting and will make recommendations in four parts. First, this is the "Productivity Problem." I don't think that today's hearing really got into this, and I doubt that my paper will do enough, now that the productivity topic is so clearly indicated. I will communicate more with staff and provide

other resources.

For example, the popular literature (even occasional mistakes appearing in Wall Street Journal and Forbes and Baron's) show confusion between the Productivity Index and our nation's actual productivity; not recognizing, for example, that American productivity is still far ahead of the rest of the world. On the other hand, the index of growth in America's productivity rate has slipped and that is the problem being worked on. The growth rate in productivity has declined since 1973 without adequate explanation, although some plausible explanations are beginning to appear; e.g. the difference between new capital and old capital and demography changes.

My second recommendation is that schools' goals should incorporate notions that are related to productive behavior. This is in line with the findings from our talks with people in business, that productivity depends not only on the tools, but on the skills and intensity with which these tools are applied. There is widespread belief among our employers that something has happened. They believe that Americans do not work with the care and dedication required, and they say it is not only with the entry level worker, but also the senior seasoned worker. Rather, witness recent issues of Harvard Business Review and other journals from business academe. Management is being targeted for blame. The article, "Managing Our Way to Economic Decline," in Harvard Business Review nearly two years ago became a landmark

article, and was really raising an issue of productivity. There is an analysis of executive behavior. This is continuing this theme today.

With this concern affecting all workers, I believe that it is not enough for the school to develop more and better job and task training. Employers tell us that they are able, willing and already giving a great deal of this training, and doing it very well. They say that they need to have employees who can profit more from that training--employees who have the motivation, the understanding and habits of conduct that allow them to be mature and productive contributors to the strength and economic health of the employer organization. This also relates to an interesting notion that is now found in some of the business literature that workers need to become accepting of, and involved in, "the theory of the firm." This notion can be viewed from the standpoint of how it can apply to schools. For example, I was quite excited in June to hear Dave Berliner, a leading researcher in school improvement, in a talk to American Association of School Administrators, say, "The classroom is a work place." It's a work place where students go to work and that a teacher must exhibit considerable executive talent, very similar to the executive behavior required in business.

I think this suggests a different perspective about how schools are organized. Whereas the teacher in many schools is being viewed, and viewing himself or herself, as the worker, the

student is the worker.

The students then, if you follow with this analogy, must be accepting of and knowledgeable of the "theory of the firm." They must know what business they are in, what of value is being produced, what is the marketplace for that something of value, and how does he know whether the business is succeeding. In this case the business is the school.

We're convinced from talking with people in business that they are ready for greater colloboration on school improvement well beyond the many examples of assistance and cooperation that we now know. Business uses very sophisticated and successful methods for staff development. Their referenced research often has the same authors that ours does. Business management literature is rich with relevant theories, programs and critiques. For example, to them the time-on-task issue is a given. They wonder why we are researching this. Also, they are interested in some of the educational literature. For example, we have found a great deal of interest on the part of business people in the work that we have done in our laboratory on the Role of the Adult Mentor in the Work Place, and how this can be institutionalized within the orgnaization to provide for not only more productive workers, but for the saving of the new arrivals in the work force so they don't become lost.

With time running out, I'm going to close then just by saying that the third and fourth recommendations are, "Schools

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With time running out, I'm going to close then just by saying that the third and fourth recommendations are, "Schools

must impart knowledge that the pursuit of multiple objectives with limited resources inevitably involves tradeoffs." And, "Schools, like businesses, are economic ventures in which the managers must marshal and allocate resources and must reward efforts that result in advances toward optimal performance." We are increasingly convinced that these can be played out from their business origin into a school framework. To give some idea about methods and programs that might be useful, you might consider a program that is really yet fully exploited, one that the National Institute did support through the years, Experience-Based Career Education. Thank you for providing this opportunity to testify.

MS. CAMPBELL: Thank you very much. We regret that we do not have an opportunity to visit with you more and to question you, but we certainly are appreciative to all of you for your patience and endurance. We will close this particular hearing on the theme that we have learned much from you folks and that our job now is to analyze, digest and to come forth with what we hope will be significant directions for education in this country.

Thank you very much.

(Whereupon, the hearing was closed at 5:02 p.m.)

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