The importance of federal expenditures for development of human resources through education

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The subtle relationships between the educational level of a people and their general welfare have long been recognized by statesmen, economists and sociologists. These interacting factors are not easily measured, and cause and effect are difficult to establish. Nevertheless some of them are logical enough to deserve brief delineation.

Education and national defense

One significant impact of education on the national welfare is in connection with national defense. Modern armies depend heavily for their effectiveness upon the quality of their men and officers and upon the arms produced by the skilled workers and scientists who back them up. Even the lowest ranks need an educational background higher than that enjoyed by many of our people.

Armed Forces rejections

During World War II the Armed Forces first rejected and later developed special training units to take care of men whose education was below the minimum. More than 300,000 men were assigned to these units. Not only were they not available until completion of the special training needed to make them functionally literate, but they required the services of a great number of other personnel as teachers. The services of more than a third of a million men were diverted from the direct war effort because of the lack of educational opportunities.

At the present time reports indicate a rejection rate of about 12 percent on the basis of failure to pass the Armed Forces qualification test. This is somewhat lower than the 16.4 percent reported for the first year of the Korean conflict, but it still constitutes a deplorable threat to our defense potential.

Relation of rejections and educational expenditures

The effects of lack of education during World War II have been studied carefully in the research project on the conservation of human resources carried on by the Graduate School of Business of Columbia University. Reporting the results of the study, Ginzberg and Bray point out in The Uneducated that the rejection rate for selectees from the 12 States spending the least amount per student on education was 7 times the rate for the 12 States spending the highest amount. A study of rejection rates during the Korean conflict has been made by

the research division of the National Education Association. It gives a similar result. All 15 of the States having a rejection rate above the national average spend less than the national average per child on education.

_Education and technical leadership_

The direct impact of education on national defense which is illustrated by the effect of illiteracy, is dramatic. However, it may well be less serious in the total picture than are the indirect effects. Lack of educational opportunity so severe as to result in illiteracy in adulthood, is an extreme situation. Much less restriction of opportunity is needed to produce other serious effects. Wolfe in America's Resources of Specialized Talent has pointed out that probably fewer than one-quarter of our bright students actually complete an education that would permit them to fill the technical and scientific posts important to national defense.

_Education and citizenship_

Although loyalty is no problem with the overwhelming majority of Americans, it must also be pointed out that the development of intelligent understanding of what America stands for is an educational job. Good citizenship does not just happen. Internal as well as external security is dependent upon education.

**ECONOMIC WELFARE**

It has long been recognized that education is directly related to productivity. In 1914, Edwin R. A. Seligman, writing in Principles of Economics stated that—

>In the commercial warfare that is being waged between nations today, education is recognized as a potent weapon. The finer the tool, the greater will be the product; when the tool consists of human energy, we have not only a great product, but a greater capacity in the human being to utilize the product.

Forty years later the United States Chamber of Commerce called attention to the fact that the median educational attainment of those earning $10,000 or more per year was 13.5 years of schooling; while those earning less than $1,000 had a median attainment of only 7.5 years. Although income is not the same as productivity it is directly related to it.

_Education and technical replacement_

Economic welfare in a highly developed industrial society is unusually dependent upon education. The educational policies commission of the National Education Association has pointed out that—

Continuous education for replacement of economic knowledge and skill is of supreme importance in a technological...
society. The length of the period of training and the brief span of a man’s working years testify to this fact. Education has an enormous job to perform in merely maintaining the present accumulated capital of economic knowledge and skill. Every death of a professionally or technically trained worker reduces the capital unless it is currently replaced.

Economic welfare is affected by education in many ways. Increased productivity on the job is only one of the benefits derived from schooling. At least equally important is the increased economic stability that results from an increase in economic literacy. Wild speculations, senseless panics, crackpot economic panaceas, all are less likely seriously to affect the economy of an educated people.

**Education stimulates consumption**

The overall impact of education on the economy is abundantly illustrated by a study of the relationship of per capita retail sales to the number of years of schooling completed by the inhabitants of some of our metropolitan areas. For example, it was found in 11 cities where the school years completed averaged between 8 and 9, annual retail sales averaged $917 per capita. In 19 cities where the average schooling was between 11 and 12 years, the per capita sales averaged $1,100 per year. These cities were of comparable size and were located throughout the country.

**Education and social dislocation**

Even as education produces wealth, so the lack of it produces poverty and ignorance with their attendant social dislocation. A group under the leadership of Dr. Bradley Buell made a detailed case-by-case study of the costs of correcting social and economic dislocation in the area of St. Paul. They discovered that one-half of all these services were required to deal with only 6 percent of the families. One family in sixteen costs society as much for these services as do the other 15 combined. The cost of social dislocation is highly concentrated in a small segment of our population. Although more research is needed on this problem, there is indication that this expensive segment of our population may be characterized as educational derelicts. Social dislocation seems to be essentially an educational problem.

**Education Is a National Enterprise**

California has an average of 1,400 residents each day who were not there yesterday. These are not newborn citizens. They were American citizens yesterday and the day before; but they did not live in California. In most cases these citizens cannot be fully educated by the State of California. Some of them are adults who must earn a living; others are teen-age youth who can receive at most a year or two of schooling in our State. Only the young children will be fully affected by the schools of California. Everybody else will have to rely on other States for all or part of his education.

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5 Educational policies commission, National Education Association, Education and Economic Well-Being in American Democracy, Washington, D. C., the association, c. 1940, p. 18.

6 Chamber of Commerce of the United States, Education—An Investment in People, Washington, D. C., the chamber, 1954, p. 9, chart No. 4.
Population mobility

Mobility is not a problem peculiar to California. From March 1955 through March 1956, over 5 million Americans moved into a new State.7 Included in this number were 948,000 children of school age (5 to 17 years). All States were affected. Even those that had a net loss of population received new residents from other States.

Mobility is a phenomenon affecting both sides of the school desk. In fact, it seems probable that it is higher for teachers than for the general population. For example, in California nearly half of the new teachers employed by school districts each year have been trained in other States. Many of them have taught in these other States from 1 to 15 years. It is clear that even a State as well favored educationally as California is heavily dependent on the rest of the United States for the quality of its teachers.

Federal impacts on education

The direct impact of Federal activities upon education in the several States has been generally recognized. Some provision has been made under Public Law 874 for helping States and their subdivisions to meet the educational needs arising from the existence of Federal installations such as airbases and defense plants. However, the aid provided is based upon the number of children whose presence in the schools of a State can be directly traced to the existence of Federal or defense installations. The actual impact is much greater than this measure indicates.

When the Federal Government alters its policy with respect to any program that has a major influence on the economy of the Nation, there is also an impact on the educational facilities of the States. For instance, it is anticipated that the accelerated program of interstate highway construction will have a marked tendency to increase the costs of school construction in the next few years. The “tight money” policy which now exists has sharply increased the interest that must be paid by States and local school districts on bonds sold to pay for new buildings.

Education is financed by a national economy

Ours is a national economy. Automobiles produced in Detroit are sold in Los Angeles. Movies made in Hollywood are exhibited in New England. Television shows staged in New York are seen in all the States and the District of Columbia. Many activities are carried on simultaneously in several States—for example, telephone, pipeline, and other transportation and communication operations.

Tax sources for educational support

In the past, educational expenses have been chiefly paid by means of a property tax. However, our present national income depends more upon economic activity than it does upon fixed property. In a speech made at the convention of the American Association of School Administrators in February 1957, R. L. Johns, head of the department of educational administration of the University of Florida, pointed out that "* * * the only sources of our national income which

are increasing or remaining constant in proportion to the total income are compensation of employees and corporate profits. These two sources of income accounted for 80.7 percent of the national income in 1954 and probably will account for a somewhat higher percentage in 1957." Dr. Johns went on to indicate that some tax other than the property tax must, therefore, be called upon to help finance education.

The gross national product is at least a rough indicator of the ability of the American economy to support the various activities undertaken in the country. In 1954, 2.8 percent of this product was expended upon public education. In this same year, total tax collections were equal to 23.6 percent of the gross national product. Revenues for the public school constituted, therefore, 9.3 percent of total tax collections.

However, when State and local tax collections are considered, it is found that in this same year school revenues formed 43.6 percent of all local tax collections and 26.5 percent of State collections. The amount expended upon public education by the Federal Government has never equaled so much as 1 percent of its tax revenue. In 1954, it was 0.3 percent.

It is clear from a consideration of the sources of taxable wealth in our economy and from these figures on the relative importance of education as a subject for expenditure of public funds at the various governmental levels that the financial crisis in American education is not due to the inability of our economy to carry the load. The crisis is clearly due to defects in the mechanism for taxing wealth produced by that economy.

Inequities among the States

The limitation of State and local taxing powers in supporting public education are clearly shown by two facts. The first is the great variation to be found among the States in the ratio of taxable wealth to children to be educated. For example, income payments per pupil in average daily attendance in public schools in 1953-54 varied from $17,471 in Delaware to $4,007 in Mississippi. The national average of $11,104 was exceeded by more than a thousand dollars by 14 States; whereas 19 States failed to reach it by more than $2,000. The most favored State had an income per child more than 400 percent of that of the poorest State.

The result is that educational facilities are unequal among the States despite the efforts of many of the poorer States to improve their status. North Dakota is 38th among the States in income payments per child; but it is first in the percentage of the total income payments made in the State that is spent for public education. Nevertheless, it is 29th in the amount spent per pupil for the current costs of education, which is less than three-fifths as much as the top State. On the other hand, the top State, New York, is 35th in effort—the percentage of its income payments that are spent on public education. It is able to be in first place in per pupil expenditures because it is in second place in income payments per student.
In part the inequities among the States are due to differences in population density and in natural resources. However, the major differences in taxable wealth are due to the workings of our economic system. Delaware is first in income payments per child not because of the natural wealth of the State but because it is the home of many large corporations. The high assessed valuations of some Michigan school districts are due to the fact that people throughout the Nation buy the automobiles produced in plants located within their limits.

As a matter of fact, many strategically located States are able to tax the entire economy to provide for their schools. Michigan property taxes paid by automobile manufacturers become part of the costs that are used in determining how much California shall pay for cars. New York city and State income taxes are paid by corporations that do business in Mississippi. These taxes help support New York schools without regard to the fact that the economic activity that made their collection possible took place all over the United States.

**The Nature and Dimensions of the Education Shortage**

We have had many warnings of our educational shortcomings by prominent educators and lay citizens. The warning of Walter Lippmann, in addressing the fifth annual dinner of the National Citizens Commission for the Public Schools, has a very penetrating quality that makes it appropriate for the present discussion:

We have to do in the educational system something very like we have done in the Military Establishment during the past 15 years. We have to make a breakthrough to a radically higher and broader conception of what is needed and what can be done. Our educational effort today, what we think we can afford, what we think we can do, how we feel we are entitled to treat our schools and teachers—all of that—is still in approximately the same position as was the military effort of this country before Pearl Harbor.

There is an enormous margin of luxury in this country against which we can draw for our vital needs. We take it for granted when we think of the national defense. From the tragedies and the bitter experiences of being involved in wars for which we were not prepared, we have acquired the will to defend ourselves. And, having done that, having acquired the will, we have found a way. We know how to find dollars that are needed to defend ourselves, even if we must do without something else that is less vitally important. In education, we have not acquired that kind of will.

But we need to acquire it, and we have not time to lose. We must acquire it in this decade. For if, in the crucial years that are coming, our people remain as unprepared as they are for their responsibilities and their mission, they will not be equal to the challenge, and, if they do not succeed, they may never have a second chance to try.12

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Two concepts we may pick from Lippmann's warning for the present commentary:

1. The present condition within public education is a danger to the Nation.
2. The essential nature of these conditions is shortage.

The educator's view is that the future of the Nation is so closely connected with what happens in our public-school system that the Federal Government cannot permit itself to be unmoved by what is taking place, nor to be bound by attitudes and viewpoints which may at an earlier time have been merely provincial or dilatory but, in today's fast-moving world, are genuinely threatening.

We may examine the available data to confirm or reject the contention that existing shortages in education are a danger to the Nation, a danger which should prompt us to exercise national educational policy in our own defense. The present paper, in its brief form, will not be able to introduce elaborate original research nor to refer to all existing sources of data. It will call to its support references which have had general circulation and wide examination.

A brief review of the recent 25 years

Our public-school system, in response to our evolving social philosophy that every individual human being shall have full opportunity for the creative or productive use of his talents, has only approached full flower within this past quarter century. This is the period when schools and their learning experiences have been made generally available to all youth through the secondary grades to ages of 17 or 18 years. The expansion of high-school curriculums and the public attitude on child labor, plus the confidence of the American people in the public school as the key to individual opportunity, has brought all but a negligible percentage of high-school-age youth into the classrooms. We have made a substantial beginning in opening the doors of higher education to many young citizens by the provision of regional and community colleges.

At the threshold of this portentous expansion of the public-school system, there have occurred social and economic events of such magnitude that they are seriously threatening this desirable progress. For the American people, the economic depression of the 1930 decade appears to have been a near-traumatic experience.

The resulting sharp decline of births across the Nation led many to believe that there was no justification for educational planning much beyond the already existing school plant and facilities. Expenditure for school buildings throughout the Nation in 1934 was less than one-sixth of its 1930 total. This basic tendency continued until 1941.13

World War II caught us unprepared to expand both a wartime and a suddenly changing civilian economy. The need for materials and concentration of manpower in war production left no resources to meet the need for supplying the altered civilian role. The shift in population across the Nation was enormous. Government restrictions on building materials shut off needed school expansion, so that, actually,

13 The Committee for the White House Conference on Education, A Report to the President (April 1966), p. 23. We shall hereafter refer to the White House Conference Committee report.
less school construction occurred than during the worst of the depression period. Until 1948, less was spent each year on school construction than had been spent in 1930. To compound the school problem, our procreative habits reversed themselves sharply, and we returned to the high birthrates of the prosperous years of the 1920's. Within a few years, we had in the newly congested areas connected with the wartime shift in population new generations of children of school-entrance ages completely beyond the capacity of existing school facilities to accommodate. With the close of the war and the gradual freeing of materials for the civilian economy, we began a race with school-population growth which has not yet been won.

A dramatic example—California

The effect of the events noted above on the educational system of the Nation has been well observed and documented, and such data can be added shortly. Let us, for a few paragraphs, illustrate the national experience in the story of one State alone, California.

The population of California has generally doubled every 20 years since 1860. The proportion of school-age members has varied throughout the decades, but the overall record may be summarized as follows:

Ninety years, 1849–1940, passed before 1 million children were enrolled in the public schools. The enrollment of the second million took only 13 years, 1940–53. The third million will be enrolled in 5 years, 1953–58. It is estimated that by 1965 there will be no fewer than 4 million pupils in the public schools.

California sees no decline in its remarkable and painful growth. Forecasters are predicting that the total population of approximately 13 million in 1955 will rise to some 24 million by 1975. Any inclination to shrug at California's distress is hardly becoming the rest of the States, since at least half of this growth may be accounted for by the immigration of "outsiders" from the rest of the Nation.

Let us look closer at California's schools. When classes opened for the 1957–58 school year, there were 183,000 more pupils than had been enrolled in 1956–57. There was need for nearly 7,000 new classrooms to care for this enrollment increase. In addition, there remained a backlog of about 180,000 children attending schools on double sessions. The double-session load has been reduced from 200,000 in 1955–56, but to remove it completely would call for another 3,000 classrooms, or a total approaching 10,000 new classrooms during 1957–58. We may recall that a 4 million enrollment is foreseen by 1965, so that annual increases of well past 130,000 are expected for each of the next 7 years.

The financial effort put forth to try to meet this school-housing crisis in California is equally dramatic. From 1947 to 1949, the State

\[14\] Ibid.


\[16\] Dr. Weldon B. Gibson, Stanford Research Institute, an address before League of California Cities, San Francisco, September 23, 1957.

\[17\] Associated Press story, San Francisco Chronicle, September 3, 1957. Data obtained from California State Department of Education.
legislature gave to school districts from wartime surplus revenues a sum of $55 million to assist their school-housing expansion. Since 1949, the citizens of the State have voted $635 million of general-obligation bonds for lending supplemental funds to match or exceed district bonding capacity. The districts themselves will have expended a total of $800 million of local revenues. On June 30, 1956, the bonded indebtedness of California's school districts was $1,110 million. Added to these totals is an amount of $130 million of Federal construction aid to schools situated near Federal installations of various kinds.15

The addition of nearly 1,900,000 pupils foreseen by 1970 will call for a California effort totaling over $3 billion, at current school costs.19

We have referred only to school costs associated with supplying classroom space. The additional expenditures for current operations almost defy the imagination. The 4 million pupils, at present current costs per pupil, will call for an annual operating expenditure of over $1,400 million.

If we examine the teacher-supply problem separately, it can be estimated that California will have to find an annual average of 4,990 new teachers per year for the next 9 years just to match enrollment growth. For the year just ended, 1956–57, the public-schools staff was 8,962 larger than in 1955–56. Even this staff increase did not prevent California from having to employ over 12,700 persons on substandard credentials, close to 10 percent of the entire teaching force.20

Besides the estimated 4,550 new teachers to care for added pupils in 1957–58, there will be needed 10,440 replacements to match the teachers who will leave the classrooms for one reason or another. For the present year, California must employ almost 15,000 new teachers. Over the next few years, there must be found and employed a new and added teaching force larger than the present staff of 125,000 members.21

The national scene; no less a crisis

While across the Nation there are spots in which this story of shortage is not especially dramatic, the total national scene is, for all practical purposes, no less severe in its outlook than is the one in California. It would be repetitious of this paper to repeat the full scale of itemized needs. Only brief summation will be attempted.

One national survey of school districts, using 1959–60 as the target year, accumulated a total need for 476,000 classrooms and related facilities, to cost approximately $16 billion at prevailing prices in 1954. Of this total the districts reported that almost $7 billion was beyond their existing fiscal capacity, although a portion of the deficit could be overcome by better district organization.22

Another survey completed for the White House Conference on Education accumulated an estimate of 200,000 classrooms for the target

15 Paul Rivers, chief of Division of Schoolhouse Planning, California State Department of Education. Initial phases of California's State building aid program may be reviewed in 12th Report Senate Investigating Committee on Education, California Legislature, 1955 regular session, pp. 9–12.
17 Carl A. Larson, California's Need for Teachers, 1957–70, California Schools (July 1957), p. 310.
20 Ibid.
21 Ibid.
year 1955-56. Projections of the data obtained to fit forecasts of enrollments for 1959-60 produced for the later year an estimate of 375,000 classrooms. The White House Conference Committee suggested:

Responsible people have estimated the sum which should be spent on school buildings by 1960 as everything from $10 billion to $15 billion. These figures are useful mainly to give a rough idea of the extent of the problem. More precise estimates will have to wait additional research, many decisions made at the State and local levels concerning the reorganization of school districts, and the quality of buildings wanted. If the people of this Nation continue to want school buildings of high quality, if resistance to the reorganization of school districts continues in many States, if the birthrate remains high, and if construction costs rise, most estimates of the amount of money needed for new schools will prove to be too low.

Of perhaps more significance is the fact that of the 41 States participating in the White House Conference survey, 19 said that they were steadily losing ground in the race to provide enough classrooms. Twelve reported that they were barely holding their own.23

In the matter of the shortage of teachers, largely parallel to the shortages of trained persons in all fields requiring a good education and mainly caused by the low birthrates of the 1930's, the White House Conference had the following to say:

To sum up, the total annual need is about 85,000 public elementary schoolteachers and there is a backlog need of about 80,000. A total of about 165,000 public elementary schoolteachers is needed this year, in addition to those new in the classroom.

In both the elementary and high schools there are now about 1,066,000 teachers in service in the public schools. There is an accumulated need of 80,000 elementary teachers, and a continuing annual need of 125,000 elementary and high schoolteachers combined. In all, then, about 205,000 new teachers are needed this year for the public schools, plus an unknown number for the nonpublic schools.24

**Shortages reduce quality**

The present paper has been silent on the major issues of quality in education by dint of great restraint, for this is an ingredient not nearly so easy to measure and tabulate as simpler matters of seating spaces and classroom staff. But behind this conspicuous shortage of physical equipment is ever present the more deplorable shortage of educational quality or outcome. The White House Conference report touches upon this aspect throughout, a quotable bit of which is brief:

The shortage of teachers is at least as severe in the United States as the shortage of school buildings, but it is harder to see **. It is no less sinister for that reason. Tens of thousands of American children are today being taught by

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24 Ibid., p. 40.
men and women who themselves have an inadequate education.
Many courses cannot be offered because qualified people cannot be found to teach them.25

Already the high schools of the Nation are finding they do not have enough qualified teachers in some of the educational subjects which in the immediate years ahead may have special significance for the safety and welfare of the country: mathematics, science, industrial arts, homemaking.26

Measures of “quality of education” are much more difficult to establish and especially to convert into financial figures. By and large, quality of education beyond certain required minimum standards of literacy, citizenship, and vocational adequacy, becomes a complex definition of desirable services and formal experiences which it is hoped to provide for each new generation.

The recent study of the New York State Educational Conference Board has come as close to proving the case for high educational expenditures as our know-how in this field will presently allow. These studies found positive evidence that schools ranking highest in mastery of essential skills (the fundamentals) usually have the most comprehensive programs for attaining the other important elementary school objectives. Such schools often use many or all of more than 100 practices not frequently found in schools ranking lowest in the mastery of essential skills. The general conclusion was inescapably that it paid to spend money on education.27

Good schools will spend money for the factors that in the long run mean good education. Class sizes will be no larger than to enable the teacher to do what a teacher is trained to do. The teacher will be fully prepared to fulfill his role as a professional practitioner of education. There will be a sufficient supply of the materials and supplies that make learning efficient and challenging. There will be the auxiliary services required to make the school the child’s “other home.” Good schools cost money.

THE EDUCATIONAL SHORTAGE IS MONEY SHORTAGE

Within the last few years several attempts have been made to estimate how much money we ought to be spending in America for public education. As early as 1954 the National Citizens Commission for the Public Schools estimated that by 1965 public-school expenditures would of necessity increase by somewhere between $5 billion and $10 billion. The White House Conference on Education concluded in 1956 that public-school expenditures should be approximately doubled. This would point to the desirability of an increase of about $10 billion.

Any attempt to itemize the need becomes even more frightening. The school enrollment will probably increase a minimum of 12 million students during the next 10 years. It will cost more than $20 billion during the next 10 years to provide housing for these additional children. When this is added to an accumulated existing need of $10

25 Ibid., p. 34.
26 Ibid., p. 40, Teachers for Tomorrow’s Children, p. 42.
billion we get a total of $30 billion for capital outlay alone. Teachers' salaries over this period must be raised by at least 75 percent and other current expense costs will increase proportionately. These facts indicate that the cost of public education must be considerably more than doubled in the next 10 years.

If such increases are to be borne by local and State tax sources the outlook is indeed frightening. To meet this need local contributions would have to be doubled and State subsidies practically tripled. Apparently no one familiar with taxation and government thinks this kind of program either probable or possible. Even if this could be accomplished it would still leave tremendous inequalities and many States would even under this increased revenue still be unequal to the task.

**Federal Government has not faced the problem**

Even though the Federal Government spends a great deal of money on activities which are called education, these efforts are so fragmented and uncoordinated that they make no real impact on the overall problems faced by public education generally. In fact, the Federal Government provides only about 3 percent of the revenue available to the public schools. Nevertheless, all the evidence available about the nature of the income of the people, the comparative ability of the States and communities and the importance of education to the general and economic welfare would seem to indicate that the Federal Government should participate significantly in the financing of the public schools.

**Five to seven billion needed**

Granting that State finance structures can be perfected and strengthened and that local tax revenues will increase with the expanding economy there will in the next 10 years be left a gap of from $5 billion to $7 billion per year in imperative school costs which can only be met through Federal subsidy. This blunt statement may be shocking to some. However, the Russian satellite should also shock us out of our complacency. In the days ahead either we educate our children or we perish. This is a national problem and the wealth of the Nation should be utilized as fairly and scientifically as possible to meet it. This can be done only through substantial Federal participation.