(1) IMPORTANCE OF THE STUDY:

Education being an important social function, its meanings have been changing through the ages, due to change in socio-economic conditions. Before industrial revolution, the concept of education was to develop in the body and in the soul of people, all the beauty and all the perfection which it is capable of. Aristotle said that education is the creation of sound mind in a sound body. Some other philosopher was of the view that it was a complete development of the individual. But mostly the real purpose of education was to develop cultural, aesthetic, and spiritual values of life. Afterwards, the social object of education was emphasised.

It was only after industrial revolution and scientific inventions and technological changes, that education became a real need for a social human being. This revolution demanded a new type of man. Before industrial revolution, large masses were not expected to receive education beyond primary level. It was also presumed, that predominantly agricultural society would not have felt a need for education, beyond primary stage. The concept of secondary education was directly related to urban civilization, industry and trade. The industrial development and complex nature of economy demanded a different type of man and such man was to be schooled in intelligence, emotions, skills and his approach...
to life. Thus, education became more and more institutionalized.

Because of new mode of production, the demand for educated, rather than uneducated, technical rather than liberal education, was felt.

It is a well known fact that, as the system of production became complex, the objectives, the structure, the content and the output of education also changed.

It was also felt that the new system of economic production limited the capacity of individual to receive education at home from a tutor or from family. Thus, education became a social function of imparting knowledge and developing mental or physical skills. Hence, the society had to shoulder the responsibility of education. As a result of it, government came in the picture. As the government and the society, at large, started spending money after education, it was natural for the researcher to find out the relationship between education and production. It was found out that the capacity of the educated person to produce goods was much more than that of an illiterate person. A Russian educationist has to say this, on the basis of an analysis.

On the basis of an analysis of much statistical data, it was shown that elementary education raised the efficiency and earnings of the labour of workers and employees by 13 per cent in comparison with illiterate workers of equivalent age and seniority, secondary school resulted in a 108 per cent rise, higher education 300 per cent.
In 1950-51, economists and educationists of the world started discussing this problem. They discussed about education and economic growth, but before this, period, some eminent economists like Adam Smith and Alfred Marshall, expressed their views regarding education as a tool of growth. It was the Russian Revolution (with the Socialistic approach, human dignity and planning) that brought about a change in the outlook regarding education. This revolution proved, that proper planning in education could bring desired results in the growth of Soviet Economy.

In October, 1961, the Organisation for Economic Cooperation and Development held a conference in Washington on policies of economic growth and investment in education. Such conferences were held often afterwards and they could establish a relationship between education and economic growth. Halsey, Floro & Enderson had to say that,

"Education becomes, then, a major form of investment for the economy as a whole, and old educational forms turn themselves willy-nilly to the new purposes of the modern economy."

The same idea has been expressed in "Learning to Be",

Another obvious cause of educational expansion stems from economic development. More men and women are directly involved in increasing complex economic activities. Expanding economic need ever-larger numbers of skilled workers and technological change transforms traditional trades or creates entirely new job categories requiring large-scale training or retraining. Any action aiming to spur the economy of a country presupposes a parallel effort in education. To this may be
added the emergency of new demands from hitherto stagnant, traditional rural economics. This has led to urgent pleas for education from young people and adults, especially from the disadvantaged classes hitherto more or less entirely excluded from organized educational activity.

Thus, in modern economy, education becomes an important factor for the growth of national economy. It is also found that the relationship between enrolment and per capita income is positive and close.

It is stated in the Report of the International Commission in the Development of Education prepared by Edgar Faur:

In 1963, the developed nations' expenditure on education rose to more than 120,000 million, and that of developing countries to less than 12,000 million, with about one-third the population and one-quarter of the young people in the world, industrialized countries spent ten times more money on education than the developing countries. Does it not mean that the expenditure on education depends upon the development of the nation, rather than planning and awareness of the people?

Moreover, it is an established fact that the return on human resources is not only much more but continuous for a very long time, than the capital invested on raw material. This can be substantiated thus:

In an advanced industrial society, it is inevitable that the educational system should come into very close relationship with the economy. Modern industrial technology, based on the substitution of electrical and atomic for other forms of power and introducing new and more intricate
forms of the division of labour, transforms the scale of production, the economic setting of enterprise, and the productive and social role of labour. It is dependent to an unprecedented extent on the results of scientific research, on the supply of skilled and responsible manpower, and consequently on the efficiency of the educational system.

It does not mean that all the levels of education are directly related to economic growth in developing countries. The growth and development at primary level is not due to increased economic activities but due to compulsory schooling or legal or constitutional provision such as to meet the target of free and compulsory education for all children up to the age of fourteen years. But this too was not achieved within ten years.

Historically, it is also argued that industrial development preceded the educational development in U.K., U.S.A. and Japan. Thus, the question is, whether education precedes economic growth or economic growth precedes education. John Vaisey says,

This is a chicken and egg problem. Did economic growth precede or follow educational development?

In my view, little of importance can be said almost the role of education in an economy until there has been a fairly detailed analysis of what education consists of the various countries and what skills and attitudes it develops, which specifically help economic growth.

So this is the problem which the investigator wants to investigate.

Study under Indian condition:

Keeping in mind the period between 1951 and 1971 during the twenty years after the Independence of India, the democratic government at the centre had tried to create equal opportunities
for all in the field of education through planning in advance. But, even today there is no evidence of a uniform level of development in the field of education in various states of the Indian Union. This study aims at finding out the causes of this uneven development in different states while keeping the government's endeavour in mind.

(1) If the aim of education is to socialise human beings (alongwith the individual aim) and if the system of education depends upon the socio-economic structure of a given society, then the subject of the thesis is worth-studying.

(2) If there is a close relationship between level of education and income then also this subject is worth-studying.

But the most important aspect of this subject is, that income from the various sectors changes from State to State and at the same time there is a different growth of education from level to level. It is worthwhile to find out the relationship between sectorial income and level of education. To make this point clear, it was generally observed that predominantly agricultural community or State are mostly involved in primary education. But again, the point is, if a developing country wants to come up and proceeds on the road to industrialization, could it plan educational structure and increase the level of education, and then give momentum to economic growth? Keeping this point in view, the researcher has analysed these four States, by
studying a number of economic indicators, along with the achievements by levels of education.

Hypothesis:

(i) It is generally assumed that the development in education depends on the economic development of the country.

(ii) Empirically speaking, development in education and economic growth display a positive and dynamic relationship. It is apparent from the fact that the educational development is greater in the industrially developed nations than that in the industrially backward countries.

(iii) "It is obvious that a country with a low G.N.P. per capita cannot afford to have most of its young people between 15 and 19 in full time education and thus withhold from gainful employment. On the other hand, a highly industrialized country with a high G.N.P. per capita can hardly afford to break off the education of most of its young people at the age of 14."

(iv) It is generally believed that the cause of the uneven development in the field of education in the different states in India, lies in the uneven economic growth. A large amount of money has been spent for the planned development in education. Even so, it seems possible that the Stages of economic development and development in education may very well be different in a region or may also be concurrent.
This thesis aims at studying the question whether development in education in these four States has kept pace with economic growth.

Objectives:

(i) To study all the levels of educational development in the four States: Orissa, Gujarat, Maharashtra and Bihar between 1960-61 and 1970-71.

(ii) To attempt to measure mathematically the gap between the advanced states and backward States.

(iii) To study levels of economic development in these States.

(iv) To study the impact of economic growth on educational development.

(v) To study disparities at district levels in the field of educational development and economic development.

Review of previous work done on the present subject:

A study on the "Education and Economic Growth" had been undertaken once before in this country.

Dr. M.B. Karnik had submitted his Ph.D. thesis in 1967 to the Gujarat University on "Educational Development in the State of Gujarat during 1951-61 with special reference to the Economic Growth in the State".

Smt. Rama Mishra, "Education and Socio Economic variations with special reference to a village" (University of Indore, Indore, 1977 unpublished).
Dr. Veena Dhan Raj, "Role of Education in Economic Development of an under developed Economy with Special reference to Gujarat" (Sardar Patel Institute of Economic and Social Research Institute, Ahmedabad, 1975).

Smt. Pratibha A. Dave had submitted her M.Ed. dissertation to the Gujarat University in 1973 on the subject "A Comparative Study of Educational Expenditure in Orissa, Kerala, Gujarat, Maharashtra and Bihar- 1961-65".

(ii) Study Design:

To test the above mentioned hypothesis the present research worker has undertaken the educational study of two advanced States viz. Gujarat and Maharashtra, and two educationally backwards viz. Orissa and Bihar.

The study of the levels of educational development and economic growth of the year 1960-61 and 1970-71 was made by cross-section method. The rank-correlation approach has also been used to arrive at the state level comparison.

The percentage distribution method based on the proportion of the given population in the States has been used to study educational inequality. The score method has been resorted to, in making a comparative study of the economic and educational development at the district levels.

Various reports and documents of the Indian Union and State Governments have been largely used for this study.
(A) **Educational Development** :

First of all, the researcher studied the question of educational level prevailing in these States during the period 1960-61 and 1970-71. The achievement of education at every level, was found out and then ranks were given according to their achievement at each stage of education.

(i) In order to study the growth of primary and secondary education, the following factors are taken into consideration:

- primary and secondary schools and their pattern of management.
- number of schools per area and per population-index.
- total enrolment, girls' enrolment.
- number of students per school.
- number of teachers and their qualifications and percentage of women-teachers.
- Teacher-pupil-ratio and teachers' salaries.

(ii) The following different factors were then taken into consideration for the study of higher education:

- universities and research institutions.
- general, professional and other colleges.
- enrolment in general and professional colleges.
- enrolment of girls.
- number of teachers.
(B) Inequality in the field of Education in the four States:-

To compare the educational development of these States, the percentage method has been used.

Method Used :-

This method is completely based on the population in each of these States. The index of population in each State for 1961 and 1971 was arrived at with the help of the following formula:

\[ \frac{(P)_{s_j}}{T_j} \times 100 \]

(\text{where} \ j = 1, 2, 3, 4).

Then, to examine the three main variables at every level of education in a comparative manner, an index was determined for each of them (a) institutional index (b) enrolment index and (c) expenditure index.

Notations Used :-

\[ S = \text{State}, \quad I = \text{Educational Institutions}, \]
\[ P = \text{Population}, \quad E = \text{Educational Expenditure}, \]
\[ R = \text{Enrolment}. \]

States :-

(1) \( S_j \) \( \rightarrow \) \( j \)th State.

\( j = 1 \rightarrow \) Orissa State  \( j = 2 \rightarrow \) Gujarat

\( j = 3 \rightarrow \) Maharashtra  \( j = 4 \rightarrow \) Bihar.
(2) Population :

\[ P_{s_j} = \text{Population of the } j\text{th State } (j=1, 2, 3, 4) \]

\[ P_{s_1} = \text{Population of Orissa State.} \]

\[ P_{s_2} = \text{Population of Gujarat State.} \]

\[ P_{s_3} = \text{Population of Maharashtra State.} \]

\[ P_{s_4} = \text{Population of Bihar State.} \]

\[ T_j = \sum_{s=1}^{4} P_{s_j} \]

\[ T_j = \sum_{s=1}^{4} P_{s_j} = \text{total population of the four States.} \]

\[ (X)_{s_j} = \frac{P_{s_j}}{T_j} \times 100 \text{ Index (a)} \]

Where \((X)_{s_j}\) denotes the population index i.e., the percentage population of the \(j\)th State as compared to the total population of all the four States.

\((j = 1, 2, 3, 4)\)

(3) Educational Institutions :

\[ (I_p)_{s_j} = \text{Institutions for Primary Education of} \]

\[ (I_m)_{s_j} = \text{Institutions for Middle Education of} \]

\[ (I_s)_{s_j} = \text{Institutions for Secondary Education of} \]

\[ \text{the } j\text{th State.} \]
(Iₜ)ₖₗ = Institutions for Higher Education of the jth State.
(Iₜ)ₖₗ = All types of Educational Institutions of the jth State (Iₜ = Iₚ + ............. + Iₙ)
( where j = 1, 2, 3, 4 ).

\[
(Iₚ)_{sₖ} = \frac{(Iₚ)_{sₖ}}{\sum_{j=1}^{4} (Iₚ)_{sₖ}} \times 100
\]

(Yₚ)ₖₗ = Index denotes the percentage of Primary Education Institutions of the jth State to total primary education institutions of all four States. (b - ii)

(Yₘ)ₖₗ = Index for Middle Education Institutions of the jth State. (b - iii)

(Yₛ)ₖₗ = Index for Secondary Educational Institutions of the jth State. (b - iii)

(Yₚ)ₖₗ = Index for Higher Educational Institutions of the jth State. (b - iv)

(Yₚ)ₖₗ = Index for all Educational Institutions of the jth State. (b - v)
( j = 1, 2, 3, 4 )
Enrolment in Educational Institutions :-

\[ (R_p^j) = \text{total enrolment in Primary educational institutions of the } j\text{th State.} \]

\[ (R_m^j) = \text{total enrolment in the institutions for Middle Education of the } j\text{th State.} \]

\[ (R_s^j) = \text{total enrolment in the institutions for Secondary Education of the } j\text{th State.} \]

\[ (R_h^j) = \text{total enrolment in the institutions for Higher Education of the } j\text{th State.} \]

\[ (R_w^j) = \text{total enrolment in the all Educational Institutions of the } j\text{th State} \]

\[ (R_w^j) = (R_p^j + R_m^j + R_s^j + R_h^j). \]

Index :-

\[ (Z_p^j) = \frac{(R_p^j)}{\sum_{j=1}^{4} (R_p^j)^j} \times 100 \quad \ldots \ldots \ldots \quad (c - 1) \]

- where \((Z_p^j)\) denotes the percentage enrolment of the \(j\)th State to total enrolment of the four States at primary education level.

\[ (Z_m^j) = \text{Index for the enrolment of the } j\text{th State at Middle Education level.} \quad (c - 2) \]

\[ (Z_s^j) = \text{Index for the enrolment of the } j\text{th State at Secondary Education, level.} \quad (c - 3) \]
(Z_{h,j}) = Index for the enrolment of the jth State at Higher Education level. \quad (c - 4)

(Z_{w,j}) = Index for the enrolment of all Educational Institutions of the jth State. \quad (c - 5)

(j = 1, 2, 3, 4).

(5) **Educational Expenditure**: -

\( (E_{p,j}) = \) total expenditure on Primary Education of the jth State.

\( (E_{m,j}) = \) total expenditure on Middle Education of the jth State.

\( (E_{s,j}) = \) total expenditure on Secondary Education of the jth State.

\( (E_{h,j}) = \) total expenditure on Higher Education of the jth State.

\( (E_{v,j}) = \) total expenditure on Education of the jth state \( (E_{v,j} = E_{p,j} + \ldots + E_{h,j}) \)

**Index**: -

\[
(D_{p,j}) = \frac{(E_{p,j})}{\sum_{j=1}^{4} (E_{p,j})} \times 100 \quad (d - 1)
\]

- where \( (D_{p,j}) \) indicates the percentage of expenditure of the jth State to total expenditure of the four States on Primary Education.
\( (D_{m})_{sj} \) = Index of expenditure of the \( j \)th State on Middle Education \((d - 2)\)

\( (D_{s})_{sj} \) = Index of Expenditure of the \( j \)th State on Secondary Education \((d - 3)\)

\( (D_{h})_{sj} \) = Index of Expenditure of the \( j \)th State on Higher Education \((d - 4)\)

\( (D_{w})_{sj} \) = Index of Expenditure of the \( j \)th State on Education \((d - 5)\)

\((\text{where } j = 1, 2, 3, 4)\).

\( (E_{d})_{sj} \) = total indirect expenditure of the \( j \)th State on education.

\( (E_{t})_{sj} \) = total educational expenditure of the \( j \)th State \((E_{t}) = E_{w} + E_{d}\).

**Index:**

\[ (I_{e})_{sj} - \frac{(E_{d})_{sj}}{\sum_{j=1}^{4} (E_{d})_{sj}} \times 100 \quad \ldots \ldots (e). \]

\[ (T_{e})_{sj} - \frac{(E_{t})_{sj}}{\sum_{j=1}^{4} (E_{t})_{sj}} \times 100 \quad \ldots \ldots (f). \]

\((\text{where } j = 1, 2, 3, 4).\)
\( (I_{e})_{s_j} \) = Index of the indirect expenditure of the jth State on Education i.e., the percentage of the total indirect expenditure of the jth State to total indirect expenditure of all the four States on Education.

\( (T_{e})_{s_j} \) = Index of the total educational expenditure of the jth State i.e., the percentage of the total educational expenditure of the jth State to total educational expenditure of the four States.

Differences :-

(a) Educational Institution Index as deviated from population index :-

\[
\begin{align*}
(1) \quad (y_{p})_{s_j} &= (Y_{p})_{s_j} - (X)_{s_j} \quad (j = 1,2,3,4).
(2) \quad (y_{m})_{s_j} &= (Y_{m})_{s_j} - (X)_{s_j} \quad -do- \\
(3) \quad (y_{s})_{s_j} &= (Y_{s})_{s_j} - (X)_{s_j} \quad -do- \\
(4) \quad (y_{h})_{s_j} &= (Y_{h})_{s_j} - (X)_{s_j} \quad -do- \\
(5) \quad (y_{w})_{s_j} &= (Y_{w})_{s_j} - (X)_{s_j} \quad -do-
\end{align*}
\]

(b) Enrolment Index as deviated from population index :-

\[
\begin{align*}
(1) \quad (z_{p})_{s_j} &= (Z_{p})_{s_j} - (X)_{s_j} \quad (j = 1,2,3,4). \\
(2) \quad (z_{m})_{s_j} &= (Z_{m})_{s_j} - (X)_{s_j} \quad -do- \\
(3) \quad (z_{s})_{s_j} &= (Z_{s})_{s_j} - (X)_{s_j} \quad -do-
\end{align*}
\]
(4) \( z_{h}^{s_{j}} = (Z_{h}^{s_{j}}) - (X)_{s_{j}} \) (\( j = 1,2,3,4 \))

(5) \( w_{w}^{s_{j}} = (Z_{w}^{s_{j}}) - (X)_{s_{j}} \)

(c) **Expenditure Index as deviated from population index** :-

(1) \( a_{p}^{s_{j}} = (D_{p}^{s_{j}}) - (X)_{s_{j}} \) (\( j = 1,2,3,4 \)).

(2) \( a_{w}^{s_{j}} = (D_{w}^{s_{j}}) - (X)_{s_{j}} \)

(3) \( a_{g}^{s_{j}} = (D_{g}^{s_{j}}) - (X)_{s_{j}} \)

(4) \( a_{h}^{s_{j}} = (D_{h}^{s_{j}}) - (X)_{s_{j}} \)

(5) \( w_{w}^{s_{j}} = (D_{w}^{s_{j}}) - (X)_{s_{j}} \)

(6) \( i^{s_{j}} = (I)_{s_{j}} - (X)_{s_{j}} \)

(7) \( t^{s_{j}} = (T)_{s_{j}} - (X)_{s_{j}} \)

(c) **Economic Indicators** :-

Many causes can be attributed to the State for the advancement or the backwardness in the field of education. The causes could be political, social, historical or economic. The researcher is of the opinion that economic factors are more important than all the rest of them. To test this hypothesis the researcher has endeavoured to examine the relationship between educational and economic growth, keeping the following economic indicators into consideration. Counsel has been obtained from experts of economics to fix proper indicators which are as follows :-
(a) Population as a Factor:
- total population : area : density.
- rural population, villages.
- urban population : towns and cities.
- types and distribution of towns.
- literacy : male and female.
- proportion of scheduled castes and scheduled tribes in the total population.

(b) Agriculture:
- agricultural cropping pattern.
- agricultural-income.
- agricultural workers, agricultural labourers, land-man-ratio.
- credit societies.
- productivity levels.

(c) Industrial Sector:
- industrial pattern.
- industrial income, income from large scale-sector.
- industrial workers, percentage of workers engaged in factories other than household.
- productivity level.

(d) Tertiary Sector:
- tertiary sector - income.
- labour force in tertiary sector, workers engaged in trade.
- availability of transport: roads and railways.
- per capita consumption of electricity.
- percentage of electrified villages.
- availability of bank in relation to population.

(e) State: Ability, Effort and Achievement:
- state income, per capita income.
- budgets, expenditure on education.
- distribution of educational expenditure at various levels.
- per capita educational expenditure.
- pattern of income in education.
- Government role and aid to education.
- role of private enterprises.
- salaries of teachers at various levels.

(f) Regression method is adopted to find out the relationship between, (i) primary education and agriculture, (ii) post primary education and industrialization, and (iii) post primary education and tertiary sector of economy for State level comparison.

(g) Districts: Educational and Economic Development:
To study the relationship between educational and economical development, score method is used. The detail methodology is discussed in the chapter 11 because it is a complete

* beyond primary level (Standard of I to VII) of education i.e. it includes secondary and higher education also.
Separate work at district level. It is necessary for the complete picture of the economic and educational development of the four States under study. On the basis of the score index, rank is given to the each district of the State and then regression method is also adopted to find out the relation between educational and economic development.

References


4. Ibid p.28.

5. Halsey and Flood and Anderson, op. cit. p 1
