COST EFFECTIVENESS IN COLLEGIATE EDUCATION

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Preface

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CHAPTER I
COST EFFECTIVENESS IN COLLEGIATE EDUCATION

Introduction

This book entitled "UNITCOST IN COLLEGIATE EDUCATION– A COMPARATIVE ANALYSIS" was aimed at finding out the relationship seen between unit cost and the level of efficiency of a ten selected colleges of Madurai Kamaraj University. In this chapter, the investigator has presented the introduction to the problem, the objectives, hypothesis and the rationale of the study.

Background of the Problem:

All economic activities including the acquisition of education require spending of money by those who want to receive it. For the provision of educational facilities money is spent by the public authorities and the individuals concerned. Education is provided free of cost till the completion of secondary schooling by the public authorities in Tamilnadu. Even then the students have to pay the special fees, the cost of books, stationery and others. In the case of higher education level, the students have to pay fees also for getting education. In the computation of costs of education the social or institutional cost and the personal or individual cost should be taken into account. Schultz (1963) states that the total cost of schooling can be obtained by adding all of the costs borne by the student and all of the costs not borne by the student.

The expenditure incurred for running an educational institution consist of either capital or non-recurring

expenditure and current or recurring expenditure. The capital expenditure includes spending on items like purchase of lands for the construction of buildings; installation of necessary equipments; cost of library, cost of laboratory and so on. The current cost of education includes money spent on the payment of salaries to staff, purchase of library books etc. In an attempt to analyze the cost of education data on the recurring expenditure can be obtained without much difficulty. Also these expenditures are repeated every year.

Cost of Education

According to Jhingan (1979), the term cost generally refers to the amount paid for receiving a product or anything. To Goal (1975), cost of education refers to the amount paid for getting education in a given number of years is the money value of inputs absorbed in producing a given unit of educational output in a given year.

The costs of education whatever may be the aspects under consideration vary with scope. The wider the scope the greater the estimate. Inspite of unambiguous and scientific classification and definition of various components of the costs of education, it is not possible to obtain an accurate measure of the total cost which includes a multitude of odd items starting from current outlay to estimates of opportunity and non-monetary costs. In studying the cost of education the Economics mainly deal with the unit cost of education.

Unit Cost

Venkateswar Rao (1969) states that cost of education can be conceived of having three different aspects such as

(I) Institutional cost (II) Student cost and (III) Opportunity cost. This classification is also agreeable to pandit (1969). He also classified the cost of education as institutional cost; student cost and opportunity cost. Vaizey (1973) considered both public and private costs under cost of education. He pointed out the Limitations of the method of calculating earnings foregone. Schultz (1963) delineated the different types of costs that should be taken into account in assessing the economic value of education. He made it clear that his attempt was limited to factor costs of schooling and does not include costs of activities like university research which do not directly serve educational purposes. His break up of total resource costs were as follows:-

(I) School costs or costs incurred by society on teachers' salaries, supplies, interest and depreciation on capital.

(II) Opportunity costs incurred by individuals namely income foregone during school attendance.

(III) Incidental schooling related costs incurred by individuals; for example on the purchase of books and on travel.

Backer (1964) classified costs as private and social and subdivided each of these into direct and indirect. By direct private cost he meant the costs of tuition, books and supplies and additional living expenditure incurred by students. By indirect private cost he meant income foregone by students. Becker defined direct social costs as the sum of educational expenditures incurred by the colleges and the social costs of books and additional living

expenses. He defined indirect social costs as the taxes foregone on earning foregone.

. Institutional Cost

The term institutional cost denotes the amount spent by an educational institution to educate the students. This consists of both the recurring and non-recurring expenditures. Pandit (1969) defined institutional cost as having the following components:-

(I) Capital costs that is non-recurring cost as of land and building; laboratory, hospitals; waterworks, library, hostels etc.

(II) Equipment cost and

(III) Non-divisible recurring cost.

According to Venkateswar Rao (1969) the institutional cost can be divided into two parts

(I)Non-recurring costs and

(II)Recurring costs, Non-recurring costs can be further divided into capital cost and equipment cost. The capital cost includes cost of land, building, library and laboratory etc, while the equipment cost represents the services rendered by the library and laboratory equipments. The recurring cost can further be divided into divisible and non-divisible depending upon whether the items can be clearly allocated and ear-marked between different courses and faculties.

. Student Cost

The term student cost refers to the money spent by the students and their parents for receiving education. The personal expenditures incurred for education cover both tuition and non-tuition costs. Pandit (1969) included tuition fees, cost of books, equipment and stationary

purchased by the students and not supplied by the institutions charges under student cost

. Efficiency

The term efficiency refers to the satisfactory utilization of the facilities provided for turning the output with minimum wastage that is the concept of efficiency emphasizes that wastages should be reduced to the minimum as far as possible.

Dayc-Fede (1972) pointed out that the term efficiency usually denotes a measurable quantity. According to Sheehan (1972)

Efficiency is the ability to produce or achieve a desired effect in the minimum of effort or waste. The efficiency of educational process refers to the degree of wastage of resources within a given technique. Huq (1976) stated that the various educational inputs including students, teachers and various parts of the educations production mechanism act and react upon one another. The efficiency of the mechanism is heavily depended on the quality of human resources influenced by the Social and Economic environments of students and teachers.

According to Kamat (1969) there are four different meanings to the concept of efficiency. They are

(I) Efficiency of the total National effort on education as alternatives to other welfare or non-welfare activities.

(II) Efficiency of the allocation of a given national budget on education over its different parts or sub-heads such as primary education, secondary education and so on.

(III) Efficiency of expenditure over a sub-head of education such as higher education or over a group of institutions or over a single institution providing such education measured in terms of the educational facilities made available from that expenditure and

(IV) Efficiency of expenditure in situation three but here measured in terms of the actual output, that is, the trained people, produced in that situation. He is of the view that all the above different aspects of efficiency relate to only one aspect namely, maximization of the use of facilities provided on output for a given amount of expenditure. Adhvarya (1969) classified efficiency into two aspects, namely internal efficiency of the educational system at various levels.

The external efficiency of the system depends on how efficiently it meets these needs. The external efficiency can have two aspects namely quantitative and qualitative. The quantitative external efficiency rests on how efficiently the system is able to supply the quantitative needs for manpower such as engineers, doctors, technicians, economists etc., the qualitative aspect of external efficiency of the educational system would deal with the problem whether the manpower released by the educational system satisfies the specific requirements of the job it is intended to perform in the economy

From the above discussions it is found that efficiency has two sub-divisions namely, internal and external. An

analysis of efficiency should include the fruitfulness of the educative process in terms of students passed.

The investigator in the present study by unit cost means the sum total of institutional cost; student cost and opportunity cost. By institutional cost the investigator considered only the recurring cost. By student cost the investigator meant the tuition and other fees paid by the students and other expenses incurred on the purchase of books, stationary, and transportation charges. Thus the investigator by unit cost considered these two components, as done by Pandit and Schultz

By efficiency the investigator meant the achievement of students in four aspects such as academic subjects, fine arts, competitions and sports and games. In academic performance the investigator takes into consideration the proportion or successful students classified as per their divisions obtained. The performance in fine arts include proficiency in music, painting, fashion parade dance and drama. The third aspect of efficiency consisting of competitions include achievement in quiz, oratorixal contests,

Essay and poem competitions. The excellence of students in various games has been included in the sports and games aspect of efficiency. Thus the investigator in the present study considered the academic as well as other performance of the students under the variable efficiency. In the present study the investigator after finding out the unit cost and efficiency intends to analyze the relationship between them.

RATIONALE FOR THE STUDY

Now everyone is talking in terms of the accountability of the money spent even in educations. Qualitative improvement of education is the slogan of the day. It is nothing but the efficiency educational concept emphasized in education. The products of institutions are the students who come out successful from them. When there are constraints for allocating funds for education, it is the duty of administrators to see that the funds allocated are utilized for the purpose for which they are intended. These products are the indicators of the level of efficiency of each institution. The need for a study of the efficiency level of each institution with respect to its products turned out is being felt now. A comparison of unit cost of education per student of different colleges is helpful in ascertaining.

Whether it is possible to achieve greater efficiency when cost increases. For studying the level of efficiency of educational institutions at the present juncture, the present researcher thought that it was appropriate for him to take up a study on "COST EFFECTIVENESS IN COLLEGIATE AND DISTANCE EDUCATION IN MADURAI KAMARAJ UNIVERSITY – A COMPARATIVE ANALYSIS". STATEMENT OF THE PROBLEM.

OBJECTIVES

1. To find out the Unit cost of different courses among the selected colleges of Madurai Kamaraj University.
2. To find out the level of efficiency of different courses among the colleges.
3. To find out the cost-efficiency index of the different courses within the College.

4. To find out the differences in the cost efficiency index between courses within a college.
5. To find out the relationship between unit cost and efficiency of the different courses in the selected colleges.
6. To compare the different colleges for their relationship between unit cost and efficiency of the different courses among the colleges.

. HYPOTHESES

1. There is no significant difference in the cost efficiency index of each course in the selected colleges.
2. There is no significant relationship between unit cost and efficiency of different courses in the selected colleges and
3. There is no significant difference in the relationship between unit cost and efficiency of the different courses among the colleges.

ASSUMPTIONS

1. For the purpose of the study, only the current cost of education incurred by the institutions was included.
2. The study is limited to only two years. The expenditure and efficiency details pertain to the period of study only.
3. For finding out the efficiency of the institution, the academic performance of students, their performance in fine arts, competitions and sports and games only have been considered.

4. The investigator did not include the maintenance cost of the students because they differ extremely with respect to their maintenance.

PLAN OF REPORTING

The chapterissation used for the organization and presentation of the material of this study is as follows:

CHAPTER-I Introduction to the problem, Rationale, Objectives and Hypotheses.
CHAPTER-II A survey of Related Research Literature.
CHAPTER-III Method, procedure, and Data collection.
CHAPTER-IV Data Analysis
CHAPTER-V Discussion
CHAPTER-VI Summary and Conclusion.

CHAPTER – II
A SURVEY OF RELATED RESEARCH LITERATURE

INTRODUCTION

A survey of related Literature close to the present theme will facilitate an understanding of the concepts and methodology used in the past studies together with their findings and limitations. The investigator by understanding the earlier studies done can proceed in the present Endeavour with confidence. According to best (1977) a brief summary of the previous research and writings of recognized experts provide evidence that the researcher is familiar with what is already known and with what is still unknown and untested. By pointing out in brief the abstracts of previous research findings the investigator can devise his own methodology to proceed with in the present attempt. This will also help his to avoid unnecessary duplication what has already been done. Thus a resume of past studies will be of immense help to any investigator as it shows the direction to proceed. In brief this part of the research report is an eye-opener to any investigator.

STUDIES ON COST OF EDUCATION

The investigator has presented first the Indian studies on cost of education followed by foreign studies. Under the caption of Indian studies the studies carried out by the Indian statistical Institute, Datt, shah, Gulkarni, chalam and Thilak have been presented.

. INDIAN STUDIES ON COST OF EDUCATION

A survey was made by the planning division of the Indian Statistical Institute 1966 to collect information on how people of different income groups share public expenditure on education so as to find the cost of education for the year 1963 from an urbanized village near Calcutta. The methodology adopted in this study was based on the one used by Vaizey in his estimates of the cost of education for United Kingdom. This study concentrated on secondary education and calculated the annual cost of education per student excluding the cost of maintenance and private expenditure incurred on stationery, book etc. In this study, data were collected from a total of 2227 students covering five schools. From the study it was found that the schools' share towards direct expenditure on education was Rs. 92.98 per student. It was also inferred that the five school sample did not spend anything on meals; transportation and other services during the year. The cost of education per student in the year was estimated at Rs.106.86 excluding expenditure on guardian's share towards books and stationary.

Datt (1967) made a case study attempt to find out the share of teacher cost, non-teacher cost and the share of other factors together with the total cost of education for a single year by taking institution as the unit for the purpose of calculation. In this attempt he studied the unit cost of education in Arts Colleges of Haryana taking into account the current cost of education for the year 1965-66. This study on current cost of education was a point estimate for a single year only. This study covered a total of 28 colleges covering both aided and Government institutions. In this

study statistics about the income and expenditure were taken form the report of Ministry of Education. Datt used a formula to arrive at the unit cost of education. His analysis took into account all types of current expenditures met in a year and also factors like total number of students, the staff strength, average salary per teacher etc. He arrived at the unit cost of education by using the formula

$$\text{Unit cost} = \frac{T+A+Q+M+J}{N}$$

Where T = Teacher cost;

A = Salaries of Non-teaching staff;

Q = Expenditure on Equipment;

M= Miscellaneous Expenditure;

J = Expenditure on Co-curricular Activities;

and N= Enrolment

The study was also directed towards determining the share of a few factors like age of the college; average pay of teacher, enrolment and the ratio of non-teacher cost to total cost which go to determine the unit cost. For analyzing the share of the above stated independent variables. The relative share of these factors were obtained from the equation

$$Y=L+B_1(N)+B_2(K)+B_3(T/n)+B_4\left[\frac{C-T}{C}\right]+\ldots\ldots\ldots$$

From this he found that the value of B_2 was 1.74 and it was found to be significant at 0.01 level . The other factors were found to be not as significant as the age of the college. Datt also found out the value of 'r' of each one of the variables with unit cost of education. When all colleges included in the study were considered together, it was found to be significant at 0.01 level. The correlation

coefficient obtained for other factors were 0.48 for unit cost and age of the colleges; 0.04 for unit cost and enrolment; and 0.40 for unit cost and the ratio of non-teacher cost to total cost. The unit cost arrived at showed that they were the highest in the Government colleges ranging between Rs.403 and Rs.425. But it was also found that the unit cost worked out to Rs.311 for all colleges of Haryana. The study revealed that the unit cost of education was smaller when all colleges were considered together than it was for the individual colleges coming under different managements. This study showed that teacher cost per student was the most influential factor.

Gulkarni (1969) made an attempt to study the unit cost of education of education in commerce colleges of Bombay. Further, his analysis of unit cost covered institutional cost only. His analysis was for a period of five years from 1962 to 1966. His study revealed that the unit the unit cost per student increased from Rs.316 to Rs.433 during that period. This study also revealed a reduction in the teacher-pupil ratio from 1:33 to 1:25. It was found that the teacher's salary was the most important item of expenditure which accounted for 40 to 50 percent of total cost. While the average number of students per college varied between 960 and 782 during 1960-66; the average number of teachers was constant at 29. The study showed that miscellaneous expenditures accounted for nearly 40 percent of total annual cost.

Shah (1969 a) studied the effect of family status on private cost of education. His study was based on a sample survey of ten percent of students of the faculty of commerce of Baroda University. This study was conducted

during the period October 1966 to December 1966. In this study 125 students were asked to provide information on (a) The economic, social and educational background of their families; (b) the source and amount of aid received for meeting out the educational expenditure and (c) their view on existing fees rates and preference to continue education without aid. However this attempt of Shah had the following limitations. (a) the study was mainly a case study and was confined to only one department of the University (b) most of the students contacted in the study were found to be pursuing only general school and college education. In this study students' families were classified into five income groups and it was found that only 32 percent of families were in the income group of Rs.3600 and below. The rest of the 68 percent were found to be having income above this level. Thus in this study the students of high income group dominated the sample. Shah took into account both tuition and non-tuition costs of the students' expenditure. The study revealed that students attended the different types of schools managed by Government or private individuals based on their ability to pay for them. The expenditure on non-tuition items was found to be much for students of high income families.

Shah (1969 b) made another attempt to analyze the trend of expenditure on professional schools by including vocational; technical and teacher training schools. The study revealed that change in the system from general to vocational was rather slow in India. He held that the expenditure on these types of schools were purely investment expenditures. This study covered a period of ten years from 1951 to 1961. From this study it was found

that (i) the share of Government funds on the total direct expenditure on professional schools accounted for 77.5 percent and 80 percent respectively during 1951 and 1961. (ii) This study also revealed that over the period under review the total direct expenditure on professional schools went up from Rs.36.9 million in 1950-51 to Rs.114.1 million in 1960-61 (iii) The growth rate of enrolment was 114.2 percent in professional schools. In 1960-61 the enrolment in professional schools was only 0.4 million. (iv) Also the study found that the teacher-pupil ratio went down from 1:11 in 1950-51 to 1:15 in 1960-61 (v) The investigation revealed that there was comparatively a slower shift in secondary education from general to vocational education. This conclusion was examined by him in relation to international trends in the allocation of direct educational expenditure and enrolments between professional and non-professional schools during the period. (vi) His study revealed that for the families of students coming below the income group of Rs.3600 the tuition and non-tuition costs were found 47 percent and 53 percent respectively to the total cost. But while the non-tuition cost accounted for 65 percent for families having an income of Rs.3600 and above. Thus from this study it was observed that large difference existed in the non-tuition cost per pupil rather than the tuition cost between the students of high and low income groups. In this study the non-tuition costs included cost of books and stationery, private tuition, transportation and maintenance expenditure of all these it was found that private tuition had a major share in the total non-tuition cost. This study observed that the cost of books and stationery was the

main item of expenditure to poor students. Thus it was evident from this study that non-tuition expenditures was not so much for poor families and the same accounted a major share for the students of high income families.

Chalam (1978) in his unit cost Analysis attempted to cover all the students of the two University colleges of Arts, Commerce, Science and technology of Andhra University. The private expenditure of the students was also obtained by him. He grouped the students for the departments into two categories namely hostellers and day-scholars and selected 10 percent from each group by adopting simple random sampling technique. He classified the cost of education into three components such as school costs, personal costs and opportunity cost. Though Chalam considered all the three components of cost of education, in his calculations of unit cost only the institutional cost was covered by him. The objectives of the study were (i) to estimate the different costs of education; (ii) to estimate the social and private cost of University education and (iii) to compare the cost of education between the colleges of Andhra University. The result of the study indicated that the unit cost of university students was about Rs.24,000 in arts based subjects and Rs.31,000 in science based subjects. It was also found out that the expenditure habits and the pattern of private expenditure of the students were mostly influenced by their socio-economic background.

Thilak (1979) made an attempt to examine the relationship between unit cost and different variables in the college education with a view to know whether unit cost depended on any rational criterion or not. Several alternative functional forms were also tried in estimating

the cost function. The major findings of regression analysis were that of all the variables, student-teacher ratio and the average salary of the teacher were the dominating variables. Thilak found that higher student-teacher ratio reduced unit cost and increase in average salary of the teacher resulted in an increase in unit cost. He concluded that if the policy makers wanted to reduce the unit cost they have to control these two variables. But being given that salaries of teachers could not be reduced because of several practical limitations, the policy makers can control only the other variable namely, the student-teacher ratio.

An attempt was made by Sharma (1993) to examine the functioning of two non-viable colleges namely, Government College, Daman, and Navyug Science College, Surat both affiliated to South Gujarat University, Surat. The objective of the study was to analyse how efficiently resources were allocated and utilized in these two colleges and also estimate the unit costs of providing graduate education. The study revealed that the unit cost per student in government colleges was higher by 2.71 times in comparision with the private college. The reason for higher unit cost in the government college was attributed to three factors namely, lower student-teacher ratio, small size of enrolment and higher average salary of teachers. Furthermore, the pattern of expenditure analysis revealed that almost all the funds available with non-viable colleges were spent on the salary of teaching and non-teaching staff and a very small amount was left for library, laboratories and other teaching aids. The quality of the academic infrastructure in these colleges were very poor and adequate funds have not been allocated to various

academic and co-curriculars activities. The unit cost for the three year graduate programme was estimated at Rs. 40,829 for government college while the effective cost for producing a graduate was worked out at Rs. 66,880. In private college, while the unit cost for the three year graduate programme was Rs. 15,835, unit effective cost amounted to Rs. 19,341.

Todaro (1993) who examined several aspects of the problem of economic development in third world countries observed that, due to various forces operating on both the demand and supply side, there has been a tremendous acceleration in developing countries public expenditure on education during the last three decades. Both the proportion of national income and of national budgets spent on education have increased rapidly. In Asia, total public expenditures tripled during the 1960s and 1970s. In Africa and Latin America, public educational expenditure more than doubled. In fact, the increase in public expenditure on education in the 1960s and 1970s exceeded increases in any other sector of the economy. By 1980s, educational budgets in many Third World Nations accounted for 15 to 30 per cent of total government recurrent expenditure. Todaro further observed that while there was a sizeable expenditure in terms of overall budget, developing nations nevertheless were spending only $27 per capita on public education as opposed to $428 per capita spent in the developed countries.

In assessing private costs of higher education in Kerala, Salim (1993) classified direct private costs into two groups: academic and incidental. Academic costs showed the expenditure directly related to instruction, whereas the

costs which were not directly related to instruction are referred to as incidental costs. The major components of academic costs were pre-admission cost, fees given to the college, private tuition fee, books, stationery, project/thesis works, study tours and other instructional costs. Incidental costs consisted of subscriptions, travel costs, hostel expenses, clothing, entertainment, donations and others. The study showed that the actual cost per student in technical education was only slightly higher at the degree level and substantially lower at the post graduate level than that of general education. The study also indicated that the facilities of higher education were being appropriated mostly by high income and occupations groups and these groups spend considerably higher amounts than low income and occupation groups. Salim (1996) made an attempt to estimate institutional costs of higher education in Kerala. The study found that it was much more expensive for institutions/government to create and maintain a seat of engineering education than to do the same in general education. Teaching cost occupied the most important components of recurring costs. Colleges spent a small proportion on library and games and sports. Capital costs constituted a significant part of the institutional cost. Building is the most important items of capital costs. Only a small part of the institutional cost was covered by fees paid by the students; and a major part of the remaining amount was liberally subsidised by the government. The extent of subsidisation was about four times higher in education for engineering colleges than that of general education.

Baldev, et al. (1994) had done a survey on school education in Mizoram. Attempt was made in this study to estimate per student expenditure from a sample of 72 schools belonging to urban and rural areas in Lunglei district. The survey found that per pupil expenditure was the highest in the Government Middle School followed by Primary Schools. In the government aided middle schools and the government high school, the expenditure was equal. In the government aided high schools, however, the per pupil expenditure was marginally higher than that in government high schools.

Lalliani (1990) conducted a study on the growth of primary education in Mizoram during the post-Independence period in which she analysed the growth of enrolment, expenditure and other infrastructural facilities at the primary level. The study found that the share of public expenditure on primary education increased from 34.5 per cent in 1953-54 to 50.7 per cent in 1971-72 but later on, it gradually decreased. In 1985-86, the percentage expenditure on primary education came down to 32.2 per cent. The ratio of plan outlay on primary education to total educational outlay also showed a declining trend. From 36 per cent allocated for primary education in the Fifth Plan (1975-80), the allocation came down drastically to 12 per cent in the Seventh plan (1985-90). The proportion of expenditure on teachers salaries Increased from 79.5 per cent in 1977-73 to 95.7 per cent in 1982-83. The annual non-teacher cost per pupil was Rs. 75 in 1986-87. The cost of physical formation like buildings etc. constituted just 1 per cent in 1986-87. The study clearly revealed that

infrastructural facilities at primary education level were extremely limited and inadequate.

National Council of Applied Economic Research (1995) conducted a survey relating to private expenditure on elementary education in India covering 15 states and union territories. The survey came to the conclusion that lack of finance is the most important reason for non-enrolment and hop-out of children throughout the country despite the fact that the government and other public bodies are bearing a large share of educational costs in the form of capital investment in land, buildings, other infrastructure and various subsidies on tuition fees, books and school dresses. The purvey found that the estimates of private expenditure on elementary education per student per year showed wide variation across states ranging from a low of Rs. 290 in Bihar to is high as Rs. 1029 in Delhi. Regional variations in prices explained only a small proportion of this difference in expenditure and a complexity of economic and social factors are behind such wide variation. In Assam and West Bengal, high cost of education went together with high non-enrolment End drop out whereas in some states like Bihar, Madhya Pradesh, Orissa and Rajasthan despite low private cost of education, non-enrolment and dropout remained high. Private expenditure per student roses from low to high income groups implying a positive income elasticity and private expenditure was prohibitively high for low income groups in most of the states. Proportion of income spent on elementary educations falls from low to high income groups. Private expenditure when dis-aggregated into its components revealed that school uniforms, books and

stationery absorbed the major part of the total expenditure.

Sharma (1964) in his study of benefit-cost analysis of teacher education calculated the social indirect cost of teacher education by imputing the value of property tax exempted assuming that it was a linear function of the replacement value of the real estate used by colleges and universities. He also took into account the other taxes from which schools were exempted. He also calculated foregone income-tax and the foregone earning of the students and adding all taxes. The upper limit was estimated by multiplying the income foregone by 0.87.

Becker (1964) classified costs as private and social and sub-divided each of them into direct and indirect. He estimated the private direct cost by using the statistics published by the U.S. office of Health, Education and welfare. In this study he subtracted from gross tuition fees contribution made by Government on account of tuition fees. He also made correction for part-time students by assuming that two part time students were equal to one full-time scholar. Further Becker made adjustment in his studies for the scholarship amount received by students. By this adjustment s he found that scholarship accounted for 20.7 percent of the tuition fees paid by the students. Finally, he observed that tuition payments were $112 per student in 1956 and $ 242 per student in 1958. Becker also calculated the current educational expenditures by subtracting from the total education expenditure non educational expenditure that is expenditure on extension, organized research and organized activities relating to the department. He also made on adjustment in his estimate

for capital used for non-educational activities for attaining the social indirect cost. He added the value of property tax foregone on the property owned by the educational institutions. He found that the value of property tax foregone was $ 18 per student in 1939 and $21 per student in 1949.

STUDIES ON EFFICIENCY

In this section studies made on efficiency of educational institutions by Hajeela and Tikkiwal (1966) in their joint study "Wastage in Education and Measures to prevent it" present an objective method of measuring the internal efficiency of education. They also referred to possible causes of wastage in education. Hajeela and Tikkiwal presented the data on a batch of 47 students admitted in the year 1959-60 in M.A (Economics) in the department of Economics, University of Rajasthan to have a picture of wastage. The data gave information regarding all the students till they had left the department without completing the M.A. (Final) up to the end of the academic year 1962-63. They also further observed information regarding whether or not the students took up appropriate jobs after completing their M.A. This information was obtained by following up the students who had passed the examination till the end of the academic year 1963-64. In this case study (1) it was found out that wastage due to stagnation was 2.3 percent; (2) the wastage due to drop-outs was 5.86 percent and (3) wastage due to non-utilization of training was 39.40 percent. They explained the causes of wastage and measures to prevent them.

Rao and Tikkiwal (1966) on the basis of a study visualized the wastage in a given course of education as consisting of three components. (1) Wastage for the course due to stagnation; (2) wastage for the course due to drop-outs and (3) wastage due to the non-utilization of training. In their study "An integrated approach to the as study of wastage in a given course of education" they presented the data on a batch of 47 students of the Department of statistics of Rajasthan University. They found that the only significant wastage was of the third type and it was as high as 39.04 percent.

STUDIES ON UNIT COST AND EFFICIENCY

Datt (1972) made a study to analyze the Institutional cost and Efficiency of education of the colleges of Punjab University. The purpose of the study was to analyze the factors affecting unit cost of college education and to examine whether there existed any relationship between cost factors and efficiency. The study covered only the current cost of education for a single year

1964-65. A total of 47 colleges were analyzed. In the study efficiency was interpreted as the ratio of total students passed to the total students enrolled. The variables included in this study of Datt for analyzing unit cost and efficiency were enrolment; age of the college; average pay of teacher; teacher-pupil ratio and the ratio of arts to science students. It was found that the average cost of education per student admitted was Rs.520 for Governments colleges and Rs.353 for non-Government colleges. Likewise a similar difference was observed in the cost of education for successful students between the

Government and non-Government colleges. In this study the cost of education per student admitted which was the dependent variable was associated with SIX variables by means of regression analysis. The equation adopted was

Unit cost=A + B_1 (G) + B_2 (K) + B_3 (N) + B_4 (W) + B_5 (P) + B_6 (J)

Where G = The type of management (Government/non-Government),

K = The age of the college,

N = Enrolment,

W = Average pay of teacher,

P= Teacher-pupil ratio,

And J =Percentage of arts to science students admitted.

Likewise for analyzing the level of efficiency the effect of the variables taken for analyzing the unit cost were also taken. Here the efficiency level was arrived at by the formula

Efficiency=A + B_1 (G) + B_2 (K) + B_3 (N) + B_4 (W) + B_5 (P) +B_6 (J)

Where G = Type of institution,

K = The age of the college,

N = Enrolment,

W = Average pay of teacher,

P = Teacher-pupil ratio,

And J =Percentage of arts to science students admitted.

From this it was found that the age of the college was not associated with the institutional efficiency in a significant manner. The percentage of arts to science students admitted was found to be statistically significant as it yielded a positive correlation with efficiency. As was done for cost and efficiency, the study also made an

attempt to analyze the effects of the above six variables on the cost per successful student. From this it was found that age of the college was not at all significant in affecting cost per successful student. The ratio of Arts to science students was also found to be negatively associated with cost per successful student. The study observed that the crucial factors affecting cost per student passed were enrolment, teacher-pupil ratio and average pay of teacher. Datt further observed that cost per student admitted and cost per student passed were inversely related with enrolment.

A Survey of related literature close to the present theme will facilitate an understanding of the concept and methodology used in the past studies together with their findings and limitations. The researcher by understanding the earlier studies done can proceed in the present endeavor with confidence.

Immanuel (1972) made a study on functional efficiency of autonomous colleges. Four autonomous colleges were identified and selected for a comparative analysis. The objectives of the selected study are, to develop a comprehensive set of criteria for assessing the functional efficiency of American college, Lady Doak College, Madura college and Parasakthi College. It was aimed to find the strengths and weaknesses of the four colleges in terms of the developed criteria and to identify the measure suggested by the personnel for improving the functional efficiency of these colleges.

Questionnaire for students, Lecturers, Head of the Departments, Dean, Director of Physical Education, Controller of examinations and Principals were developed

for collecting data. Strengths and weaknesses were identified.

It was concluded that American College was found to be satisfactory in terms of two dimensions viz, evaluation and material resource management. Ladydoak college was found to be functionally satisfactory in terms of learning experiences provided. Madura college is found to be functionally satisfactory in terms of material resource management and personnel management. Parasakthi college was found to be functionally satisfactory in fulfilling the societal needs and evaluation.

Rajulton (1979) made an attempt to study "Evaluation of Autonomous colleges in the two Jesuit colleges (Loyola College, Madras) and (St. Josephs College, Trichy). The major objectives of the study were to measure the degree of response of students and staff to the concept of Autonomous colleges, to understand the hopes and fears of students and staff involved in the Autonomous colleges, to study how far new methods of teaching and learning have been introduced. In addition, to know the reactions of students to the revised curriculum, internal assessment procedures and conduct of examinations by the college, to obtain an overall assessment of the program by the Principals in the light of his experiences.

Data were gathered from inner strata of colleges viz students, staff and Principals. It was found out that there was an overall positive reaction towards the autonomous program on the part of students and teachers. Job oriented courses are very much lacking and students confess their inability in this regard. In Loyola college, fifty per cent of students like to be left for independent study.

Mrs. Rajalakshmi (1984) studied that "Unit Cost and Efficiency of certain Colleges of Madurai City" which was aimed at finding out the relationship between unit cost and the level of efficiency of a few selected colleges of Madurai city. The objectives of the study were a) to find out the unit cost of different courses among selected colleges of Madurai. b) To find out the level of efficiency of different courses among the colleges. c) To find out the relationship between unit cost and efficiency of the different courses in the selected colleges. d) To compare the different colleges for their relationship between unit cost and efficiency of the different courses among the colleges.

It was concluded that there existed significant relationship between the unit cost and efficiency for the different courses in some colleges. It was also found that the colleges differed in their relationship between unit cost and efficiency of different courses in some colleges.

The present study aims at analyzing two groups of colleges such as Autonomous colleges and Non Autonomous colleges that come under affiliating system of Madurai Kamaraj University. The main focus is to assessing how far those colleges differ in Academic and Managerial performances.

Higher Education in North-East India

The scope of the study is confined to the cost analysis of college education which comprises two-year pre-university courses and three-years integrated degree courses. Post-graduate education at the university and other post-matric education of technical and professional education like polytechnic and teacher's training institutes have been excluded. Institutional costs did not take into

account the expenditure on direction and administration incurred at the secretariat and directorate level. Since expenditures on scholarships, stipends and other financial assistance received by students from various sources were treated as transfer payments, they have not been considered for the calculation of unit cost of higher education. Opportunity costs are not estimated. The estimates of total cost of college education given in the present study, therefore, consist of direct private costs and direct institutional costs of education, net of transfer payments

Analysis of unit cost of education has much practical significance in the field of educational planning. Education planners and policy makers can easily evaluate the internal and external efficiency of an educational institution in terms of productivity and allocation of resources on the basis of unit cost analysis. Fielden and Pearson (1978) emphasized the value of cost analysis in the following words:"In the current economic climate, resource for education and training are becoming scarcer. There will be increasing pressure from policy makers for cost reduction and increased efficiency and there is likely to be more resistance to providing extra resources for educational projects.

Educational staff will therefore need even more than before, to make the best use of the resources available, to examine carefully the full resource implications of any proposed new schemes, and to support their arguments with quantitative data wherever possible. Cost analysis can be a powerful aid to achieve these aims"

(p.19). Unit cost analysis, specifically serves the following purposes:

(i) To estimate and working out resources required for educational sector and for various sub-sectors of education;

(ii) To improve the efficiency of resources invested in education;

(iii) To evaluate if resources allocated to education are optimally used and within educational sector whether resources are optimally allocated between different sub-system of education;

(iv) To assess the cost-effectiveness and cost-benefit ratio of the educational system as a whole and of the different levels of the system.

Conceptual Frameworks

Educational institutions like schools, colleges and universities may be considered as the firms of education industry. Like any other industrial process, the analysis of the structure of inputs and outputs of the educational system is necessary to make rational decisions with respect to resource allocation in the field of education. However, educational industry has its own peculiar characters quite distinct from other industries such as manufacturing or agriculture or even with other serviced-based industries. In most countries, education is provided and funded by government. While educational inputs are bought from different markers, the output is not sold directly. The production cycle is much longer compared with other industries and it consumes a relatively large

fraction of its own output. It is not engaged in profit-maximizing activity (Blaug 1971)

Educational institutions, like other producing units, transform inputs into outputs costs in the process. Enrolments are generally taken as the output of education in order to estimate unit cost of education. Students enter into educational institutions as the raw-material to be processed, and are transmitted from lower to higher stages as goods in process. The output of education may be said to be the "knowledge added" or "educational value added" which consists of the knowledge absorbed and capabilities developed by the students at each stage of their education. Total enrolment is taken as gross output and the number of passed-out or graduates can be regarded as net output (Prakash, 1996).

The inputs of the educational plant which enter into the educational production function consist of both human and physical human inputs include the services of teachers and other non-teaching staff, input of students, time and services as raw materials whereas physical inputs indicate the service of such material goods as books, stationery, uniforms, buildings, laboratory items and other equipments. Evaluation of the cost of these factor services formed the basis of educational cost analysis. The factor cost of education is the sum total of expenditure paid for different factor services formed the basis of educational cost analysis. The factor cost of education is the sum total of expenditure paid for different factor inputs used in the educational production function such as teachers, auxiliary staff, building, equipment, furniture, books an stationery. The services of these factor inputs are purchased from

different markets. The size of the markets of individual input may spread from purely local to international and their structures may be approximated from pure competition to near perfect monopoly. Most of the markets are, in fact, highly specialized oligopolistic markets with highly differentiated products (Prakash 1996). The education institutions which buy the factor services have to pay fixed prices set by the public authority in case of academic and non-academic staff while the services of other physical inputs are purchased at the prices prevailing in the market. In planned economies, prices are fixed by government while in the market economies prices are the result of the interplay of the forces of demand and supply.

The factor cost of education may be classified into a number of ways. Generally, educational costs are categorized into three major components. These are:

(i) Institutional cost
(ii) Private or Student cost and
(iii) Opportunity cost

Institutional cost represents the cost incurred by the government or educational institution or both in operating and maintaining the institution to provide facilities of education. Private cost of education is that part of investment in education which is made either by the student or his/her parents or both. Opportunity cost is the earnings forgone by a student on account of pursuing a given level of education or the benefits forgone that would have been available to the society in the absence of educational programme. Institution cost is usually classified into recurring and non-recurring costs or current and capital costs. Sometimes, it may also be classified into

variable and fixed costs of education. The fixed costs or capital costs or non-recurring costs mean the purchase of durable assets which are expected to yield benefits over a longer period while recurring or current or variable costs include all expenditure on consumable goods and services which bring immediate or short term benefits and have to be regularly renewed(Woodall, 1987). Recurring costs may be divided into two parts-divisible in the sense that these costs are incurred in providing services to a group or part of the student body e.g., salaries and allowances of teachers and current expenditure of on consumable stores for laboratory. Non-divisible costs comprise those items of expenditure which are incurred for providing common services to all students in the institutions and cannot be assigned to any category of students or course. These items include salaries of non-teaching staff, common services and other recurring costs excluding current laboratory expenses and costs activities.

Private cost of education is broadly divided into direct and indirect cost. Direct private cost is defined as the cost directly incurred by a household for the education of students. Direct cost has two components: academic costs and non-academic costs. Academic costs indicate expenditure directly related with given to the colleges. Cost of books and stationery items include the expenditure incurred by the students and their families on textbooks, magazines, daily newspapers, exercise books, papers, pen, tools and instruments. Non-academic costs refer to expenditure on food, transport and communication and personal maintenance. Expenditure on food constitutes an important component of private cost of education. In this

respect, students are divided into hostellers and day-scholars. The day scholars are of two types: those who stay with their parents and those who make their own arrangement outside hostel. The expenditure on food and lodging of these two categories will not be same. While the expenditure of the hostellers can easily be estimated, it is not easy for those of day-scholar. The expenditure on food and lodging may vary considerably according to individual tastes and habits and more importantly, the economic status of the students or his parents. Transport and communication expenses include the amount of expenditure incurred by the students for their journey to and from the place of study, daily transport for going to the colleges, postages and other related items. Expenditure on personal maintenance incurred by the student includes items on clothing, footwear, medicines and medical check-up and other consumables like soap, toothpastes and toiletries.

Indirect costs or opportunity costs of education represent earnings foregone by students and imputed rent of lands, buildings and other durable assets owned by educational institutions. There is some controversy relating to the inclusions of opportunity costs in the estimates of total cost of education. Blaug (1970) argued that earnings foregone should be included in any estimate of the true cost of education but Vaizey (1972) rejected this view. However, quite a few economists have attempted to measure the opportunity cost in their study on cost-benefit analysis in education and for assessing the total resource cost of education. (Shulz, 1961, Blaug, et.al 1969, Becker, 1975, OECD, 1977, Tilak 1987). To estimate opportunity

cost of education, it is necessary to calculate the imputed rental value of educational capital and the forgone earnings by students. The age education-earnings profiles which represent the earnings at each age of people with various levels of education may be used to measure foregone earnings of student. For instance, the earnings foregone by undergraduates can be obtained from the age-earnings of matriculate. The earnings forgone by any group of students can be estimated from the earnings of those who have completed the previous level of education (Blaug, et.al 1969). Since the kind of data which can be used or generated to estimate opportunity cost of education is not available in Mizoram, no attempt has been made to analyze and estimate opportunity cost of higher education.

Methodology and Sources of Data:

The sample design of the study involved two stages- the selection of colleges and the selection of the students. At the time of collection of data in 1993-94, there were 29 colleges in Mizoram all affiliated to North Eastern Hill University (NEHU); thirteen of them were general degree colleges whereas the remaining 16 colleges were either recognized or affiliated up to pre-University level. All the degree colleges for general education were selected to represent the sample of the analysis; however, data could be obtained only from 10colleges. Hence, the present study is based on data collected from ten general degree colleges in Mizoram.

The sample colleges consisted of one university college, five state government colleges and four private colleges. Four colleges offered only Arts course while other three colleges serviced both Arts and science courses.

There was one college offering Arts and Commerce course up to degree level. Only two colleges and Acts, Science and Commerce course up to degree level. These colleges taken together enrolled 8616 students i.e., 53.66 per cent of the total enrolment in all colleges in Mizoram. In the sample survey for the students stratified random sampling technique was adopted. Students were stratified according to their respective classes and their samples were randomly drawn from each class. Five per cent of the students from each class had been selected to represent the population who were administered to represent the population who were administered the questionnaire specifically prepared for them. However, the actual sample turned out to be four per cent of the student enrolled in each class after excluding incomplete and no response of the sample. The total number of students in the sample was 351 students.

As there is no secondary data available to estimate either institutional cost or private cost except tuition fee and other fees paid to the college most of the required information were collected from primary sources. For this purpose questionnaire were developed which had been administered to the sample populations. All the colleges included in the study were visited; information and data relating to the institutions were collected with the help of the college authorities. Students, randomly selected from each class, were guided and helped infilling up the questionnaire. The data collected in this way formed the basis of the estimates of unit cost of higher education in Mizoram. Three types of questionnaires were constructed and used for data collection.

(i) State level questionnaire: This questionnaire was designed to collect data and information from primary sources like the Directorate of Higher and Technical Education and Directorate of School Education and other concerned offices. State level data on enrolment, financial expenditure on recurring and non-recurring items were collected through this questionnaire.

(ii) Institutional level questionnaire: This questionnaire was used to collect information on institutional cost and other related materials needed for the estimation of unit costs. This schedule contained information about the number of teaching and non-teaching staff, enrolments, University examination results and financial expenditure on recurring and non-recurring items like salaries and allowances of teaching and non-teaching staff, games and sports, office expenditure, buildings, library books, other durable goods like furniture and equipment and fund received form various sources like government, fees and other donations from individuals.

(iii) Questionnaire for students: A separate schedule was used to collect information on different components of private costs and the socio-economic status of parents of the students. The schedule covered the following aspects:

1. Student Background-family size, income and occupation of the parents
2. Monthly average expenditure on food and rent paid to the hostel and other accommodations

3. Annual average expenditure on transport and communication
4. Expenditure on textbooks an stationery
5. Annual expenditure on clothing and other personal expenditure on toilet items,
6. Expenditure on private tuition

Those items given on a monthly basis were adjusted per year at the tabulation level and the overall expenditure is aggregated and expressed as cost per student per year.

(iv) Other sources of data: In addition to the data and information collected with the help of questionnaires, data were also collected from published and unpublished sources of government departments like Directorate of Economics an Statistics, Planning and Programme Implementation Department, Budget Documents from the Government of Mizoram, Ministry of Education (Government of India) and north Eastern council (Shillong).

The growth of institutional cost was examined for the period between 1983-84 and 1993-94. The pattern and structure of unit institutional cost was estimated separately by type of management and by the number courses serviced in the college, i.e., course-wise. The estimates of private cost were related to the academic year 1993-94. Unit institutional cost was defined as total institutional costs i.e., the sum of the annual expenditure on recurring and non-recurring items, divided by number of enrolment. Under recurring costs, the following components are considered:

(i) Teaching costs: Teachers are the basic input of the educational system. Teaching cost implies the expenditure incurred on the salaries and allowance of teachers employed in the college. Although principals of the colleges do not take regular classes, they are considered as members of the teaching staff in the calculation of teaching costs

(ii) Non-teaching Staff Costs: Non teaching staff constitutes an auxiliary input of educational production system. Wages and salaries of non-teaching staff are treated as an item of recurring expenditure or cost. Non-teaching staff include staff engaged in the general administration of the college, finance/account staff, laboratories, library staff etc.

(iii) Common services and other Recurring Costs: The costs under these items include expenditure on maintenance and repairs of buildings, equipment an furniture, rent, telephone bills, electric and water charges stationery and postal charges

(iv) Student Service Costs: These costs include the expenditure incurred on games and sports and other socio-cultural activities organized by the students.

Non-recurring or capital costs represent the expenditure on buildings, land, library books, furniture, office and laboratory equipment and other items of permanent nature. The following components are estimated in the analysis:

(i) Buildings: Generally investment on buildings happens to be the largest component of non-recurring or capital costs. There are two types

of expenditure on building: first, annual expenditure on the routine maintenance and repairs of the existing buildings which are classified as recurring expenditure, and secondly, expenditure on building construction, addition and major alteration which are considered as non-recurring costs.

(ii) Library books: Expenditure on books and journals is treated as investment in capital assets. They are available for use by students in capital assets. They are available for use by students and teachers for several years. But expenditure on binding, insecticides and other consumables is regarded as recurring costs

(iii) Furniture and Equipment: These items are essential inputs of educational production. They have their own life span and their services could be utilized during their life time. Therefore, expenditures on typewriters, duplicating machines, laboratory equipment, benches, tables, desks, and other durable assets are treated as non-recurring costs while annual maintenance and repairs are a part of recurring costs.

Direct private cost of education had been categorized into academic costs and non-academic costs. Academic costs were directly related with expenditure on fees, books and stationery incurred by the students whereas non-academic costs were expenditure related with their support and maintenance i.e., food, transport and personal maintenance. The cost of fees incurred by the

students were directly collected from the cash books of the colleges while the expenditures on their items such as books, stationery, transport and personal maintenance were calculated from the survey data among the students. The cost of food included the expenditure incurred by the students on their mess bills in the hostel and at home including daily tiffin expenses in the colleges. The rent paid by the students to the hostel and accommodation charges in rented houses was also included in the cost of food. The cost of food for day scholars who live with their parents was imputed on the basis of the size of the size of the family; similarly, the imputed rent was also estimated from the average rent paid by the students who arranged their own accommodations outside hostel. Students received scholarships, stipends and other grants; these amounts were deducted to arrive at the net private cost of education.

Cost of education may be expressed at current (market)

Or constant prices. Cost of education at constant prices takes care of increase in prices of goods and services and thus represents the real cost of education. When costs of education are computed over a period of time, it is necessary to convert current prices into constant prices because current prices may at times be deceptive especially when an economy is experiencing price inflation. The best solution of this kind of problem is to construct educational price index, based on the prices of goods and services used in educational process. Unfortunately, no such price information or index is available in the state. Thus in the absence of any appropriate price index at the

state level, appropriate Net National Product deflators were used to convert current prices into constant prices.

The analyses of data were carried out using simple statistics like percentage, means, standard deviation (SD), coefficient of variation (CV) and regression analysis. The pattern of institutional costs was evaluated by the analysis of the proportionate/percentage shares of expenditure in individual items in the total costs. The various components of Private cost were estimated using the mean, standard deviation, maxima and minima. For showing the variation and variability of private cost of education, the coefficient of variation which is the ration of standard deviation with mean was adopted.

The Ordinary Least Squares (OLS) regression technique was used to estimate the relationship between enrolment size and unit institutional cost per student and for analyzing the time series data on public expenditure on education and unit cost of education as well. The strength of the relationship between the dependent variable and independent variables had been measured by the coefficient of determination, denoted by R^2which shows how well the overall equation explains changes in the dependent variables and the t-statistic which determines the significance of the relationship between the dependent variable and independent variables.

$Y= a + bX +cX^2$

Where 'Y' is the unit cost per student, 'X' is enrolment and 'a', 'b', 'c' is the constants for the function. For unit cost 'Y' to be minimum, the following conditions will have to be satisfied:

$dY/dX = b + 2cX = 0$

and $d^2Y/dX>0$.

Convexity of the warrants that b>0 and c>0 hold together. Solution of equation (1.2) will furnish an estimate of the optimum enrolment size, say X*:

$X^* = -b/2c$.

Since 'b' is negative, the solution value of equation 1.2 at X* = X gives the minimum cost that will correspond to the optimum enrolment size (Prakash, 1996(a). The quadratic function fitted to the cost-enrolment data of different colleges determined minimum cost and optimum size corresponding to it.

Growth rates are estimated using a multiplicative true relationship between the variables concerned. The method of linear least-square is applied on its logarithmic transformation. For instance, the true relationship is

$Zt= AB^t Vt$

and the estimated relationship is

$Yt = a + bt$ (1.6)

Where Yt = log Zt, a = log A, b = Log B= log(1+g), and 'g' stands for annual estimated growth rate.

2. Unit Costs of Education Mizoram

This section deals with the estimates of unit costs of education at different levels of education such as Primary, Middle, and High School and College level. The estimates of unit costs in current prices are given for the period between 1976-77 and 1991-92. Attempt has also been made to estimate unit cost in real terms, using NNP deflators, based on 1980-81 prices. The total number of student enrolled at each stage was taken as the unit of educational output in this analysis. The total unit costs

have been worked out by two components i.e., teacher cost per student and non-teacher cost per student.

Unit Cost of Education at the primary school Level

The estimates of unit cost of education at the primary school level are given in Tables 4.13. In 1976-77, the unit cost of education at the primary level was Rs.271.37, per student which increased to Rs.1518.92 in 1991-92, indicating a rise of 5.6 times. The increase in unit cost was due mainly to rise in teacher and non-teacher costs per student. Teacher cost per student which was RE.245 in 1976-77 increased to Rs.1272in 1991-92. The unit cost of non-teaching inputs also increased from Rs.26.41 in 1976-77 to Rs.146.89 in 1991.92. Both teaching and non-teaching costs per student increased at 5.6 times over this period. Teaching cost accounted for 90 per cent of total unit cost in 1976 but its share fell down to 63 percent in 1980-81.

3. The estimates of real total unit cost

Teacher cost and non-teacher cost per student were Rs. 365.68, Rs. 330.09 and Rs.35.59 in 1997-98. The unit cost for each item increased to Rs.592.40, Rs.535.11 and Rs.57.29 per student respectively in 1991-92. In real terms, the overall unit cost teacher cost and non-teacher cost have all increased at the rate of 1.6 times during 1976-77 to 1991-92.

4. Unit Cost of College Education in Mizoram

State level financial data on college education are available only for the period between 1976-77 and 1986-87. The estimates of unit institutional cost at the college level, based on these data, are presented in Table 4.16. In

1976-77, total unit cost, teacher cost and non-teachers cost at current prices were Rs.1509.58, Rs. 540.40 and Rs.909.08 per student. The unit cost for these items increased to Rs.4275.69 Rs.1721.43 and Rs.2554.26 per student in 1986-87. During 1976-77 to 1986-87, the overall unit costs, teacher costs and non-teacher costs recorded an increase of 2.83, 3.18 and 2.64 times respectively. As given in the table, the proportion of cost accounted by non-teacher inputs have been higher than teacher cost in the overall unit cost at the college level during this period. Of the total unit cost, about 36 per cent was accounted by teacher cost and 64 per cent by non-teacher cost in 1976-77. In 1986-87, the share of teaching input, however increased to 40.26 per cent whereas non-teaching inputs decreased to 59.74 per cent.

The overall unit cost in constant prices increased from Rs.2,034.2 per student in 1976-77 to Rs.2,712 per student in 1986-87, indicating an increase of 1.3 times. Teacher cost per student in constant prices rose from Rs.728.34 to Rs.1.92.28 and non-teachers cost per student from Rs.1305.86 to 1620.72 during 1976-1986. These implied that teacher cost and non-teacher cost increased by 1.5 and 1.3 times respectively.

5. The estimates of net cost borne by the institutions under different management system are given in table 5.7. The table shows that the amount of fee receipts per student in the private colleges was relatively high as compared to other colleges. The average fee receipts in the private colleges was estimated at Rs.913 per student in 1993-94 while in university college and state government colleges, the estimated amounts were Rs.608 and Rs.470 per

student respectively. The ratio of fee to total institutional cost was the lowest in the university college and the highest in private colleges. Fees accounted for approximately 7 per cent of the total institutional cost in the university college whereas its proportions were 10.81 and 28.52 per cent respectively in the state government and private colleges.

The net cost borne by the university college was Rs.8108 per student. Meanwhile, the net costs were Rs.3876 and Rs. 2288 per student respectively in state government colleges and private colleges. These estimates reveal that the unit cost of education per student in the university college was two times the unit cost of education in the state government colleges and three times the unit cost of education in private colleges. In other words, the cost ratios show that, for the equivalent cost of educating one student in the university college, 2 students in the state government colleges and 3 students in the private colleges could have received a year of schooling. Thus, the analysis shows that the net cost borne by the institutions as well as fee receipts varied sharply among the colleges depending upon the nature of management.

Institutional Cost by College-Type (Course-wise)

Unit institutional cost per student according to the number of course offered in the colleges. Is presented. The colleges, on the average, enrolled 862 students and the unit cost per student was Rs.4659.12 per annum at this level of enrolment. As given in Table 5.8, the average enrolment size has tended to increase with an increase in the number of courses and subjects offered for servicing in the colleges. The colleges which offered only one single course have

much lower enrolment size while the colleges offering two or three courses have relatively larger enrolment size. Colleges servicing Arts course alone have enrolment size of 543 students. Colleges serving two courses, i.e., Arts and science and Arts and Commerce have average enrolment size of 662 and 1355 students respectively. However, the average enrolment size in the colleges servicing Arts and Science was relatively smaller as compared with Arts and Commerce College because in case of Arts and Science colleges, they are have seat capacity limitations imposed by laboratory facilities whereas in case of Arts and Commerce colleges, there was no such constraints except limitations of classroom space and number of teachers. Average sizes of colleges servicing the three courses have the highest enrolment size of 1551 students. Thus, it was found that average enrolment size varied widely between colleges of different types. The degree of variation, given by the coefficient of variation of average size as well as standard deviation, was calculated at 48.15 per cent and 414.87 students respectively.

Unit cost per student, like average enrolment size, varied between colleges of different types. The lowest unit cost per student was associated with Arts and Commerce College whose average enrolment size was 1355 students. The unit cost of education was the highest in case of colleges servicing the three courses of Arts, Science and Commerce and correspondingly, the average enrolment was also the highest. The degree of variability of unit cost between colleges of different types was shown by the co-efficient of variation and standard deviation which were estimated at 26.9 per cent and Rs.1253 student.

The pattern of cost indicates that both unit recurring and non-recurring cost varied widely between colleges of different types. In colleges servicing Arts course alone, recurring cost was Rs. 2956 per student, representing 85 per cent of total unit cost. In Arts and Science colleges, recurring cost was Rs.3769.50 per student accounting for 84.58 per cent of the total unit cost. Recurring cost, in absolute terms, was the lowest in Arts and Commerce College amounting only to Rs.3074 per student. However, the proportion of recurring cost was the highest in case of Arts and Commerce College which allocated 94.59 per cent of the total institutional cost. Colleges servicing the three courses had the highest recurring cost totaling to Rs. 5075 per student, indicating 81.4 per cent of the total unit cost. In fact, the amount for the highest recurring unit cost was greater by 72 per cent of the amount for the lowest recurring unit cost. The non-recurring cost in different colleges varied from Rs.175.64 per student in case of Arts and Commerce College to Rs.1160 per student in case of Arts, Science and Commerce College. In the colleges servicing only Arts and Arts and Science, the amounts were Rs.516 and Rs.687 per student respectively. The share of non-recurring costs varied between 5.41 per cent in Arts and Commerce colleges and 18.6 per cent in Arts, Science and Commerce colleges.

The variation in unit cost can be explained in terms of the differences in the student-teacher ratio and average annual salary per teacher. As given in Table 5.8, the student-teacher ratio in case of Arts, Science and Commerce colleges was 26:1 as against 36:1 in case of Arts Colleges only. Between these two extremes fall colleges

servicing two courses –Arts and Science colleges and Arts and Commerce college in which the student-teacher ratios were 33:1 and 34:1 respectively. It was observed that Arts and Commerce College which had higher student-teacher ratio also had the lowest unit cost per student. Similarly, in case of Arts, Science and Commerce colleges which had low student-teacher ratio as compared to other colleges, it was found that they incurred the highest unit cost per student. The average annual salary per teacher also varied between colleges of different types from Rs.77075 per teacher in Arts and Commerce College to Rs.90281 per teacher in case of Arts, Science and Commerce colleges. It was found that the colleges having the lowest annual salary per teacher was associated with the lowest unit cost per student and similarly, the colleges having high average salary per teacher was associated with higher unit cost per student.

Relationship between Enrolment and Cost Per student

In this section, attempt has been made to determine whether an increase in enrolment leads to a decline in cost per student in college education in Mizoram. For this purpose, institutional costs at current prices were converted into constant prices by using Net National Product deflators 1980-81 as the base year.

6. Tilak and Varghese (1983) have rightly observed the critical role private cost analysis could played in educational planning in the following words: "This information is absolutely essential to make proper planning of resources for education in general, and to plan for public expenditure on scholarship, stipends, etc. in particular. Ignoring these aspects is too costly, resulting in

a wide gap between the expected (or planned) enrolments and actual enrolments." Further, the analysis of direct private costs of education along with the estimates if the opportunity cost can furnish solution to some of the issues and problems encountered in underdeveloped countries such as the early dropout rate of poor families and irregular attendance of children belonging to agricultural families during busy season (Blaug, 1969).

Analysis of private cost of education, however, is one of the most neglected areas of research in educational costing in India. Only a few studies on this aspect were available in the country. The Education Commission (1964-66) made an attempt to estimate the cost of books, stationery and tuition fees to point out the non-egalitarian trends of education in India. The Commission observed that fees were the most regressive form of taxation which fall more heavily on the poorer classes of society and acted as the anti-egalitarian force. K.R. Shah (1969) found that non-tuition costs constituted one of the most important components of private costs of education. Chalam (1986) observed a positive relationship between private cost and the parental income of the student. Salim (1993) estimated that the burden of the household providing engineering education to their children was only slightly higher than that of general education. In another study, P.K. Sahoo (1990) found that around 90 per cent of private expenditure on education was incurred on non-tuition cost.

An attempt is made here to analyze the direct cost of higher education borne by the students in Mizoram. Direct private costs of education are examined in different courses and under different management type. Since

socio-economic status of households have direct influence on private cost of education, this chapter gives estimates of private costs by income and occupational background of the parents. Net private cost i.e., the amount actually borne by the household form its own resources was calculated by deducting scholarships and other grants received by the students from overall expenditure incurred by the household. The estimate of total costs of higher education has also been presented in this chapter.

Components of Direct Private Cost

The average cost of books and stationery was Rs.724.21 per annum while the standard deviation was Rs.745.28 among different students. The expenditure on these items varied between a minimum of Rs.35 and a maximum of Rs.725. The average fee paid amounted to Rs.654.81 per annum with a deviation of Rs.259.64. The amount of fee ranged between Rs.237 and Rs.1200 per student. The cost of food per student was Rs.7355.30 and the standard deviation was Rs.2318.26 among them. The minimum expenditure on food items incurred by the student was Rs.1115 and the maximum was Rs.16160. The average cost of transport and communication items was Rs.418.11 per annum. The standard deviation of the expenditure was Rs.591.34 with a maximum of Rs.4000. The cost of personal maintenance was Rs.2833.95 per student with a deviation of Rs.1735.63. The expenditure on these items varied between a minimum of Rs.100 and a maximum of Rs.16400.

Average cost on books and stationery at the pre-university science level was Rs.874 whereas fees amounted

to Rs.575. These two items accounted for 7.59 and 5 per cent respectively. The average cost food an item was Rs.6718, constituting as high as 58.32 per cent of the total private cost. Cost per student on transport and communication and personal maintenance were estimated at Rs.479 and Rs.2873 respectively, accounting for 4.16 and 24.94 per cent of the total private costs. Academic costs, at the pre university science level, came to 12.50 per cent while a non-academic cost was 87.41 per cent of the total private cost.

Estimates of Total Costs of Higher Education in Mizoram

The sum of net institutional cost and net private cost furnished the estimates of total cost of higher education. Table 6.9 summarises the total costs of higher education in Mizoram. The total cost of higher education was estimated at Rs.14, 582 per student in 1993-94. The net institutional cost was calculated at Rs.3958.12 per student and net private cost at Rs.10624 per student. It may be observed that net private cost was 2.68 times higher than net institutional cost. In other words, only 27.14 per cent of the total cost of college education was incurred by the institution or government while 72.86 per cent was borne by the student themselves or the household concerned. The total cost per student varied between colleges of different management types. In the university college, total cost was calculated at Rs.19230.40 per student in which net institutional cost and net private cost accounted for 42.16 and 57.84 per cent respectively. The total average private cost in the state government colleges was Rs.14216.82 per student. The share of institutional

cost and private cost were 27.26 and 72.74 per cent respectively. In private colleges, total costs amounted to Rs.13012.65 per student where in institutional cost accounted for 17.59 and private cost 82.41 per cent respectively. The following inferences can be drawn from the analysis:

(i) The total cost of education per student was the highest in the university college and lowest in the private college. The cost in the university colleges was higher by 1.35 and 1.48 times than the state government colleges and private colleges.

(ii) The share of institutional cost was the highest in the university college and lowest in the private colleges. Conversely, the proportion of net private was the lowest in the university colleges and highest in the private colleges.

So far the investigator presented a brief discussion of the available studies carried out on cost of education, efficiency of educational institutions. In the next chapter the investigator has presented the methodology of the present study.

CHAPTER – III
METHOD, PROCEDURE AND DATA COLLECTION

INTRODUTION

The present study aims at finding out the relationship between Cost Effectives in Collegiate and Distance Education in Madurai Kamaraj University. The study has three variables, namely the first two variables constitute the variable known as unit costs in the study. The last one namely institutional efficiency is the criterion variable. For measuring the variables, tools have been used. To find out the relationship between unit cost and efficiency correlation technique has been adopted. In this chapter the design of the study, the sample, the description of the tool and collection of data have been presented.

DESIGN OF THE STUDY

In compatible with the objective of this investigation the institutional cost, student cost, and the institutional efficiency are to be found out for the colleges included in the study. The two, namely institutional cost and student cost form the unit cost of the colleges are taken for careful analysis. The levels of efficiency of the colleges include aspects like achievement in academic subjects, fine arts, competitions, and sports and games. The present study has accepted the construct given by Gurbax Singh (1969) for finding out the unit cost. Institutional efficiency has been analyzed in terms of internal efficiency on the basis of the construct given by Adhvaryu (1969). The relationship between unit cost and efficiency is to be found out by means of pearsonian correlation coefficient.

For calculating the institutional cost the investigator used the formula adopted by Datt (1972) on unit cost of education for Haryana colleges. Using the same notations as used by him the investigator found out the institutional cost by the formula

$$\text{Institutional Cost} = \frac{T + A + Q + M + J}{N}$$

Where,

T = Salaries of teaching staff,

A = Salaries of non-teaching staff,

Q = Expenditure on equipment,

M = Miscellaneous expenditure,

J = Expenditure on co-curricular activities,

and N = Enrolment.

The investigator calculated the average student cost for the different courses offered in the colleges included in the study. The student cost covered both the tuition and non-tuition expenditures excluding used by the investigator covered non-tuition costs. The tuition cost component of student cost include expenditures on the payment of tuition fees, special fees, laboratory fees and examination fees paid by students for receiving education. To arrive at the total student cost for each one of the courses offered in the different colleges, the investigator added the amount of tuition cost with the average amount of non-tuition cost calculated from the data furnished by the students.

Then by adding the institution cost and student cost the investigator obtained the unit cost for each one of the courses offered in the different colleges.

For finding out the efficiency of the institutions the investigator took into account the achievement of students in four aspects namely academic subjects, fine arts, competitions and sports and games. From the data furnished by colleges the investigator obtained the efficiency score. Further the relationship between unit cost and efficiency was calculated. Table 3.1 presents the design of the study.

Table 3.1 (a)

Design of the Study

Details	Variables	Tools used
Variables	a) Institutional cost	Institutional cost schedule (ICS)
	b) Student cost	Student Cost Questionnaire (SCQ)
	c) Opportunity cost	It was not calculated

Table 3.1 (b)

Details	Variables	Tools used
Criterion Variables	Institutional efficiency	Institutional efficiency proforma (IEP)

Table 3.1 (c)

Type of institution

Sample	Type	Numbers selected
	a) Colleges	Ten colleges Autonomous (5) Non-Autonomous (5)
	b) Students	Post – Graduate

Table 3.1 (d)

Statistics

Treatment	Purpose of study	Statistics applied
Cost and efficiency	a) Cost efficiency index	$\frac{\text{Efficiency}}{\text{Cost}} \times 100$
	b) differences in cost efficiency index between courses.	Chi-square Technique
	c) Relationship of unit cost and efficiency	Pearsonian correlation Technique
	d)Differences between correlation coefficient	Test of significance of the differences between correlation coefficients.

SAMPLE

In this study there are two types of samples. One is the sample of colleges and the other is the sample of students. The sample of colleges has been discussed under Caption 3.3.

SAMPLE OF COLLEGES

Of the thirty two autonomous and non-autonomous colleges offering Arts and Science courses in Madurai city, ten colleges were chosen by the investigator on the basis of stratified random sample.

The sample includes five autonomous and five non-autonomous colleges. The following were the strata considered in the distribution and selection of colleges:

(i) autonomous and five non-autonomous colleges (ii) location of the institutions that is, whether urban or rural and (iii) the strata of sex that is, whether men or women. Table 3.2 gives the distribution of colleges in Madurai Kamaraj University under the three classifications discussed.

Table 3.2

Distribution of colleges in Madurai City

Sl. No	Category of colleges	No. of Institution	Percentage	Total
1.	Type of the Institution: a) Autonomous b) Non-Autonomous	16 16	50 50	100
2.	Location of the Institutions a) Urban b) Rural	6 + 6 = 12 10 + 10 = 20	37.5 62.5	100
3.	a) Men colleges b) Women colleges c) Co-Education	1 + 3 = 4 5+ 0 = 5 10 + 13 = 23	12.50 15.63 71.87	100

Table 3.2 shows that there are nine men and four women colleges in Madurai city. Considering their location, the colleges have been classified as six urban colleges and seven rural colleges. Management wise there are twelve aided colleges and one Government college in Madurai. From the above strata of colleges ten colleges were randomly selected giving proportionate

representation to each strata. Table 3.3 gives the sample of colleges selected for the present study.

Table 3.3
Sample of colleges selected

Sl. No.	Classification / Coding	Stratification
1	A - 01	Autonomous / Rural / Co - Ed
2	A - 02	Autonomous / Urban/ Co - Ed
3	A - 03	Autonomous / Urban/ Women
4	A - 04	Autonomous / Urban/ Co - Ed
5	A - 05	Autonomous / Rural / Men
6	NA - 06	Non autonomous / Urban / Co - Ed
7	NA - 07	Non autonomous / Rural / Men
8	NA - 08	Non autonomous / Rural / Women
9	NA - 09	Non autonomous / Urban / Co - Ed
10	NA – 10	Non autonomous / Urban / Men

The sample of students selected for the study has been described under caption

SAMPLE OF STUDENT

As the study also covers the personal cost of education of the students, the investigator selected students for obtaining data on personal cost of education. Table 3.4 presents the population and sample of students selected for the study.

Table 3.4

Population and sample of students selected

Sl. No	Classification/ Coding	Population	Sample Size	No. of sample selected
1	A - 01	-	10%	-
2	A - 02	-	10%	-
3	A - 03	-	10%	-
4	A - 04	-	10%	-
5	A - 05	-	10%	-
6	NA - 06	-	10%	-
7	NA - 07	-	10%	-
8	NA - 08	-	10%	-
9	NA - 09	-	10%	-
10	NA - 10	-	10%	-
	Total			

POPULATION AND SAMPLE OF STUDENTS SELECTED

From table 3.4 it can be seen that 269 students were selected from the ten colleges. This sample included student from all the courses offered by the colleges.

SELECTION OF THE TOOLS

As discussed under caption 3.1 there are three variables in this study. To measure the variables tools were used by the researcher. In the following paragraphs, a brief discussion of the tools used in this study has been made.

INSTITUTIONAL COST SCHEDULE (ICS)

The details about the first variable, namely institutional cost was obtained by using the institutional cost schedule (ICS). As discussed, the investigator accepted the model given by Gurbax Singh (1969) for arriving at the institutional cost. Out of the two items namely recurring and non-recurring as outlined by him, the investigator in the present study considered only the recurring items of expenditure for the calculation of institutional cost. Even among the recurring items the present study did not include items like amount of scholarship paid, hostel charges and expenditure on maintenance of university examination. The investigator decided not to cover the above items in the institutional cost of education because they are not a part of the cost of education met by the institutions. To obtain data about the institutional cost of colleges a tool known as Institutional cost Schedule (ICS) was used by the investigator based on the model of Gurbax Singh. It covered both divisible and non-divisible recurring expenditures. The tool has been given in Appendix – A. The components of the Institutional Cost Schedule have been discussed below.

1. TOTAL PAY AND ALLOWANCES PAID TO ADMINISTRATIVE STAFF INCLUDING STAFF.

From this the investigator intends to get the total salary paid to all the non-teaching staff of the respective colleges for the year 2008-2011. The usual allowances paid together with the salary were also covered.

2. TOTAL AMOUNT OF EXPENDITURE MET FOR PAYMENT OF GRADUITY, PENSION, PROVIDENT- FUND CONTRIBUTION ETC., FOR ALL STAFF

This elicits information on the total expenditure met for the payment of gratuity, pension, managements contribution to provident-fund etc., for both the teaching and non-teaching staff of the colleges concerned.

3. TOTAL AMOUNT SPENT FOR REPAIRS TO FURNITURE AND EQUIPMENT DURING THE YEAR

On the upkeep and maintenance of furnitures and Equipments for the year 2008-2011.

4. TOTAL EXPENDITURE INCURRED ON ACCOUNT OF ADMINISTRATIVE CHARGES

The administrative charges incurred on various account or heads has been asked in the fourth question.

5. AMOUNT OF CONTINGENT EXPENDITURE INCURRED ON POSTATE, STATIONARY, PRINTING ETC.

The expenditure incurred on contingent items like postage, stationery etc; by the colleges have been included and asked in this question.

6. AMOUNT OF ELECTRIC AND WATER CHARGES PAID

The amount of electric and water charges paid by the colleges in 2008-11 was asked through this question.

7. TOTAL AMOUNT OF TAXES AND RATES PAID

This includes the amount of taxes paid by colleges during the year 2008-11 to the respective local authorities.

8. AMOUNT OF EXPENDITURE INCURRED ON ORGANISING HOUSE EXAMINATION, IF ANY DURING THE YEAR 2008 - 2011

Information on the amount expenditure met for conducting examination if my held during 2008-11 was asked in this question

9. TOTAL MISCELLANEOUS EXPENDITURE INCURRED IF ANY ON ORGANISING WORK SHOPS, SOCIAL FUNCTIONS ETC

Expenditure incurred by the colleges concerned if any for organizing social functions, workshops or any other activities has been asked in this question.

10. INSPECTION AND AUDIT EXPENDITURE MET DURING THE STUDY PERIOD

The amount of expenditure incurred for paying remuneration to the inspecting authorities has been asked in this question.

11. EXPENDITURE FOR LIBRARY

This includes the expenditure incurred by the

(i) Colleges for the purchase of library books during the study period.

(i) The amount spent on the purchase of various magazine and journals during study period has been asked.

12. TOTAL AMOUNT OF PAY AND ALLOWANCES PAID TO TEACHING STAFF DURING THE STUDY PERIOD

This includes the total salary and other usual allowances paid to the entire teaching staff of the colleges concerned for the year 2008-10.

13. AMOUNT SPENT FOR PURCHASING ARTUCLES CHEMICALS FOR ALL LABORATORIES DURING THE STUDY PERIOD?

The recurring expenditure met by the colleges for the purchase of consumable articles to the various laboratories during the year has been asked.

14. EXPENDITURE INCURRED ON MAINTENANCE OF BUS, IF ANY DURING THE STUDY PERIOD

The amount of money spent for the maintenances of bus and other modes of transportation possessed by the college has been asked.

15. NUMBER OF STUDENTS STUDIED DURING THE STUDY PERIOD

This item includes the total enrolment of all students who studied in 2008-11 in the colleges included in the study.

(i) BREAK UP OF STUDENTS AS PER YEAR AND COURSE OF STUDY PERIOD

Here the investigator collected data regarding the strength of the students in each discipline.

16. TOTAL NUMBER OF STAFF SERVED IN STUDY PERIOD

These items include the number of teaching staff who served in the respective colleges in 2008-10.

STUDENT COST QUSETIONNAIRE (SCQ)

The investigator obtained data about the non-tuition costs for education met by the students through Student Cost Questionnaires (SCQ) from randomly selected students of the different courses. The tool, namely student cost questionnaire used by the investigator was based on the construct given by Gurbax Singh. Of the various items coming under this variable, namely student cost, the investigator has not taken into account the maintenance cost of students. It is very difficult to estimate the maintenance cost of students who live with their parents because they are of different socio-economic status groups. Further only a limited number of students live in hostels. Considering all these the present investigator has left

calculating the maintenance cost of the students in finding out the students' cost. The tool Student cost Questionnaire (SCQ) used has been given in Appendix-B.

The content of the Student Cost Questionnaire has been discussed briefly in the following lines.

The second tool student cost Questionnaire (SCQ) covered only the non-tuition items of expenditure. The following gives a brief description of the items coming under this cost.

COST OF BOOKS THAT YOU PURCHASED

The investigator required information on the amount spent by the student of parent for purchasing books, etc.

1. COST OF NOTE-BOOKS

It means the amount spent by the students for purchasing note-books.

2. COST OF CALCULATOR

This item includes the amount spent for getting geometry box.

3. COST OF DISSECTION BOX/INSTRUMENTS

It covers the amount spent for purchasing instruments used by science students.

4. COST OF RECORD NOTE - BOOKS

It includes the amount spent for purchasing record note – books by science students.

5. COST OF STATIONARY

The amounts spent by the students for purchasing ink, pencil, pen and other stationary articles were asked in this question.

6. COST OF PURCHASING NEWSPAPERS, JOURNALS ETC

This item includes the amount spent by the students for purchasing news papers and journals relating to education.

7. COST OF TRANSTORTATION, IF ANY

The amount spent by the students for transportation in the year was covered in this question.

8. DONATION IF ANY

Here the donations paid by the student, if any were asked.

10. TOUR EXPENSES

The amount spent by the students for excursion, study tour etc; was asked in this question.

11. WELCOME AND FAREWELL PARTY

The amounts spent by the students for participating in welcome and farewell parties held in the college were covered by this question.

12. ALL OTHER PERSONAL EXPENSES

This item includes the amount spent by the students for private tuition, uniform etc.

INSTITUTIONAL EFFICIENCY PROFORMA (IEP)

To measure the institutional efficiency the investigator took into account the achievement of students in academic subjects, fine arts, competitions and sports and games for each one of the courses offered in the different colleges. To obtain data about the achievement of students in these aspects the investigator used a tool known as Institutional Efficiency Proforma (IEP). For arriving at the efficiency score for each one of the courses offered in the selected colleges, the investigator decided to give weighed

scores for the different achievements. Table 3.7 shows the weights given for scoring efficiency.

TABLE 3.5

Weighted Score Given For Efficiency

Efficiency Aspects of the Course	Academic Achievement (in division)	Fine arts (in ranks)	Competitions (in ranks)	Sports and games (in ranks)
	I II III	I II III	I II III	I II III
Post-Graduate Course	10 5 –	5 3 1	5 3 1	5 3 1

By multiplying their performance with the corresponding weights given, the investigator obtained the efficiency score for the different courses of the colleges. The tool used has been given in Appendix –C. The component of the institutional efficiency proforma has been discussed below

1. TOTAL AMOUNT OF EXPENDITURE ON EXTRA – CURRICULAR ACTIVITIES DURING THE YEAR

This item includes the expenditure met on sports and games and for conducting various other competitions.

2. DETAILS OF ACADEMIC ACHIEVEMENT OF STUDENTS IN 2008-11

The investigator got information regarding the number of students appeared, passed and percentage of

result in each department together with details of first, second and third divisions obtained by them.

3. DETAILS OF PERFORMANCE IN FINE ARTS

This item includes the students performance in aspects like painting, music, dance, drama, fashion parade etc;

4. DETAILS OF PERFORMANCE IN COMPETITIONS

This item includes achievement of students in oratorical contests, quiz, debating contests, poem composting etc.

5. DETAILS OF PERFORMANCE IN SPORTS AND GAMES

This item covered the performance of students in various sports and games meets.

STATISTICAL TREATMENT APPLIED

Statistical techniques are to be applied for finding out the relationship between unit cost and efficiency. Further the following techniques have been adopted this study.

1. The computation of central tendency like arithmetic mean was found out for calculating the student cost.
2. The proportion of unit cost of each course to the total Unit cost was calculated for the different colleges Included in the study in terms of percentage.
3. The proportion of efficiency of each course to the total Efficiency was found out for each one of the colleges included in the study in terms of percentage.
4. By taking the ratio of efficiency to unit cost the investigator calculated the cost efficiency index of

each course offered in the different colleges in terms of percentage.

5. To find out the significant differences existing if any between the cost efficiency indices of various courses with in a college the investigator applied chi-square test
6. The relationship between unit cost and efficiency was obtained by means of pearsonian correlation analysis. The investigator took the unit cost as variable 'X' and efficiency score as variable 'Y' and obtained the correlation coefficient by means of the formula

$$r = \frac{(x - \bar{x})\ (y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2\ (y - \bar{y})^2}}$$

Where

r = represents coefficient of correlation

$(x - \bar{x})$ = represents the deviation of items in variable X taken from its mean

$(y - \bar{y})$ = represents the deviation of items of items in variable y Taken from its mean

7. To test the significance of the difference between correlation coefficients the investigator applied the test of significance of the difference between correlation coefficients.

COLLECTION OF DATA

The present study requires data about the recurring costs met by the institutions, non-tuition cost met by the students and the achievements of students in the different

efficiency aspects. The investigator has presented in brief the procedure adopted by her to gather the required data.

To obtain data about the amount expenditure spent by the colleges on recurring items the investigator used the institution cost schedule (ICS) discussed under caption 3.4.1. Furthur to get details of achievement in the different efficiency aspects, the investigator used institutional Efficiency proforma (IEP). The investigator to get the above data approached the principals of the selected colleges and sought permission to collect the data. The investigator also assured the principals that the information furnished by them will be kept strictly confidential and used for research purposes only. The details of the amount of recurring expenditure and the details of the amount of fees to be paid by the students were obtained from the administrative officer of the respective colleges. Details of students' achievements were taken from the reports available from the magazines of the respective colleges, Heads of Departments and from the administrative office.

For gathering data on the non-tuition cost of students the investigator used the tools student cost Questionnaire discussed under caption 3.4.2. The investigator with the permission of the colleges contacted the students. The student cost questionnaire was administered to the students of the various courses and gathered the data.

The next chapter presents the details of the analyses made on the data gathered.

CHAPTER – IV
DATA ANALYSIS

INTRODUTION:

The present investigation was aimed at finding out the Cost Effectiveness in Collegiate and Distance Education. This is attempt to find the extent of relationship existing between Unit Cost and efficiency among the selected then colleges of Madurai Kamaraj University. The collected data regarding cost and efficiency were analyzed by using the relevant statistical techniques. In this chapter the details of the analysis carried out and the results obtained have been reported.

Table-4.1

Score of Efficiency of Different Cources of Autonomous College-A01

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Economics	M.A	375	20	18	12	425	17.85
2.	Mathematics	M.A	445	11	14	10	480	20.16
3.	Physics	M.A	535	7	12	8	562	23.60
4.	Philosophy	M.A	450	17	15	6	488	20.50
5.	M.C.A	M.Sc	390	10	15	9	426	17.89
	Total						2381	100

From the table 4.1 it is seen that among all the courses offered for this college, the efficiency score of Physics is higher with 23.60 percent, courses such as

Philosophy and Mathematics have a moderate efficiency score of 20.50 and 20.16 percent. The efficiency score for Economics and Master of Computer Application are 17.85 and 17.89 percent respectively which are low. Table 4.14 presents the efficiency score for the different courses offered in Autonomous College A02.

Table-4.2

Score of Efficiency of Different Courses of Autonomous College-A02

Sl.No	Course	Degree	Academic Achieve ment.	Fine arts	Com petitio ns	Sports and Games	To tal	Perce ntage to total
1.	Tamil	M.A	465	20	17	8	510	8.84
2.	English	M.A	520	18	15	7	560	9.71
3.	Econo mics	M.A	600	20	20	14	654	11.34
4.	Com merce	M.Com	565	18	17	13	613	10.63
5.	Mathe matics	M.Sc	507	10	9	10	534	9.26
6.	Physics	M.Sc	490	9	10	8	517	8.97
7.	Chemis try	M.Sc	500	11	12	7	530	9.19
8.	Botany	M.Sc	400	8	10	9	427	7.40
9.	Zoolog y	M.Sc	430	9	11	8	458	7.94
10.	Micro biology	M.Sc	460	9	10	8	487	8.46
11.	Comput er Science	M.Sc	450	8	12	6	476	8.26
	Total						5766	100

From the table 4.2 it is found that the efficiency score of Economics is higher with 11.34 percent. The efficiency score of Botany is the low with 7.40 percent. The efficiency score for other subjects are moderate ranging from 7.94 percent to 10.63 percent. Table 4.15 gives the efficiency score of Autonomous Colleges A03.

Table-4.3

Score of Efficiency of Different Courses of Autonomous College-A03

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	To tal	Percentage to total
1.	Tamil	M.A	315	20	15	6	356	7.86
2.	English	M.A	265	18	14	7	304	6.71
3.	Economics	M.A	360	19	14	12	405	8.94
4.	History	M.A	285	15	12	10	322	7.11
5.	Commerce	M.Com.	570	16	15	12	613	13.54
6.	Physics	M.Sc.	375	11	10	6	402	8.88
7.	Chemistry	M.Sc.	480	10	8	9	507	11.20
8.	Microbiology	M.Sc.	285	8	12	6	311	6.87
9.	Business Administration	MBA	705	12	10	10	737	16.28
10	Computer Application	MCA	540	15	9	7	571	12.61
	Total						4528	100

From the table 4.3 it is inferred that the efficiency score for Business Administration is high with 16.28 percent. The efficiency score for commerce is 13.54 percent which is moderate. The efficiency score of Tamil, Economics, History, Physics and Microbiology are 7.86, 8.94, 7.11, and 8.88 respectively. The lowest efficiency score of 6.87 and 6.71 is represented by Microbiology and English. Table 4.16 gives the efficiency score of Autonomous College A04.

Table-4.4
Score of Efficiency of Different Courses of Autonomous College-A04

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Tamil	M.A	300	18	17	15	350	11.05
2.	English	M.A	315	15	15	9	354	11.18
3.	Economics	M.A	405	17	21	12	457	14.43
4.	Philosophy	M.A	195	11	9	10	225	7.10
5.	Mathematics	M.Sc	420	12	10	8	450	14.22
6.	Physics	M.Sc	405	10	11	9	435	13.73
7.	Chemistry	M.Sc	405	10	12	8	435	13.73
8.	Botany	M.Sc	435	9	10	7	461	14.56
	Total						3167	100

For Autonomous college A04 the efficiency score of Botany and Mathematics are 14.56 and 14.22 percent

which is high. A moderate efficiency score of 14.43, 14.22 and 13.73 percent are represented by Economics, Mathematics, Physics and Chemistry. The lowest efficiency score is recorded for philosophy with 7.10 percent. Table 4.17 presents the efficiency scores for Autonomous college A05.

Table-4.5
Score of Efficiency of Different Courses of Autonomous College-A05

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Commerce	M.Com	405	17	14	12	448	28.00
2.	Chemistry	M.Sc	375	11	10	8	404	25.25
3.	Zoology	M.Sc	390	12	11	9	422	26.38
4.	Computer Science	M.Sc	300	10	9	7	326	20.37
	Total						1600	100

As seen from the table 4.5 the efficiency scores for commerce, Zoology and Chemistry are higher with 28.00, 26.38 and 25.25 percent. Computer Science has a lower efficiency score. Table 4.18 present the efficiency score of Non Autonomous College NA 06.

Table-4.6

Score of Efficiency of Different Courses of Non-Autonomous College-NA06

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Commerce	M.Com	300	16	15	11	342	35.96
2.	Mathematics	M.Sc	210	10	12	10	342	35.96
3.	Computer Science	M.Sc	240	9	10	8	267	28.08
	Total						951	100

It could be observed form the table 4.6 that the higher efficiency scores of 35.96 and 35.96 percent are recorded by Mathematics and Commerce while computer science has a lower efficiency score of 28.08 percent. Table 4.15 highlights the efficiency score of Non – Autonomous College NA 07.

Table-4.7

Score of Efficiency of Different Courses of Non-Autonomous College-NA07

Sl. No	Course	Degree	Academic Achievement.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Economics	M.A	330	16	14	14	369	26.95
2.	Commerce	M.A	360	15	15	16	402	29.36
3.	History	M.A	350	11	11	12	399	28.42
4.	Computer Science	M.Sc.	180	8	8	9	209	15.27
	Total						1369	100

It is manifest from the table 4.7 that the highest efficiency scores are recorded by commerce, History and Economics with 29.36, 28.42 and 26.95 percent respectively. Computer Science has a lower efficiency score of 15.27 percent. Table 4.20 gives the efficiency score of Non – Autonomous College NA08.

Table-4.8

Score of Efficiency of Different Courses of Non-Autonomous College-NA08

Sl. No	Course	Degree	Academic Achievement.	Find arts	Competitions	Sports and Games	Total	Percentage to total
1.	Commerce	M.Com	285	16	18	14	333	52.28
2.	Mathematics	M.Sc	270	11	13	10	304	47.72
	Total						637	100

It is observed from the table 4.8 that the efficiency score of commerce and Mathematics are 52.28 and 47.72 percent respectively. Table 4.21 gives the efficiency score of College Non – Autonomous NA 09.

Table-4.9

Score of Efficiency of Different Courses of Non-Autonomous College-NA09

Sl. No	Course	Degree	Academic Acht.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Commerce	M.Com	300	17	15	13	345	14.11
2.	Mathematics	M.Sc	255	9	12	11	287	11.74
3.	Physics	M.Sc	375	10	8	11	404	16.52
4.	Microbiology	M.Sc	225	10	11	7	253	10.35
5.	Computer Science	M.Sc	225	9	10	8	352	14.40
6.	Business Administration	M.B.A	405	15	13	11	444	18.16
7.	Computer Application	M.C.A	330	9	12	3	360	14.72
	Total						2445	100

It could be observed from the table 4.9 that Business Administration and Physics have a higher efficiency score of 18.16 and 16.52 percent respectively. The efficiency scores for computer application, computer science and commerce are 14.72, 14.40 and 14.11 percent respectively. The efficiency score of microbiology is 10.35 percent which is the lowest. Table 4.22 presents the efficiency score of Non – Autonomous college NA 10.

Table-4.10

Score of Efficiency of Different Courses of Non-Autonomous College-NA10

Sl. No	Course	Degree	Academic Acht.	Fine arts	Competitions	Sports and Games	Total	Percentage to total
1.	Commerce	M.Com	360	14	15	16	405	44.33
2.	Chemistry	M.Sc	225	11	10	8	254	27.78
3.	Social work	M.A	225	10	11	9	255	27.89
	Total						914	100

It is manifest from the table 4.10 that the efficiency score of commerce is high with 44.33 percent. The efficiency scores for chemistry and social work are moderate with 27.78 and 27.89 percent respectively. The following Table 4.23 presents comparative scores of efficiency in terms of percentage for different courses.

Table-4.11

Comparative Efficiency in terms of Percentage for Different Courses

Sl. No	Course	Degree	A01	A02	A03	A04	A05
1.	Tamil	M.A	-	8.84	7.86	11.05	-
2.	English	M.A	-	9.71	6.71	11.18	-
3.	Economics	M.A	17.85	11.34	8.94	14.43	-
4.	Commerce	M.Com	-	10.63	13.54	-	28.00
5.	Philosophy	M.A	20.50		-	7.10	-
6.	History	M.A	-		7.11	-	-
7.	Social Work	M.A	-		-	-	-
8.	Business Adminis tration	MBA	-		16.28	-	-
9.	Mathematics	M.Sc	20.16	9.26	-	14.22	-
10.	Physics	M.Sc	23.60	8.97	8.88	13.73	-
11.	Chemistry	M.Sc	-	9.19	11.20	13.73	25.25
12.	Botany	M.Sc	-	7.40	-	14.56	-
13.	Computer Application	MCA	17.89		12.61	-	-
14.	Micro biology	M.Sc	-	8.46	6.87	-	-
15.	Computer Science	M.Sc	-	8.26	-	-	20.37
16.	Zoology	M.Sc	-	7.94	-	-	26.38

From the table 4.11 it is seen that the efficiency of the different courses vary widely among the different colleges and different courses. The lowest efficiency is identified for the branch English 6.71 percent in college Autonomous College A03 and the highest efficiency score is for commerce in Autonomous College A05.

Table-4.12

Comparative Efficiency in terms of Percentage for Different Courses

Sl.No	Course	Degree	NA06	NA07	NA08	NA09	NA10
1.	Economics	M.A	-	26.95	-	-	-
2.	Commerce	M.Com	35.96	29.36	52.28	14.11	44.33
3.	History	M.A	-	28.42	-	-	-
4.	Social Work	M.A	-	-	-	-	27.89
5.	Business Administration	MBA	-	-	-	18.16	-
6.	Mathematics	M.Sc	35.96	-	47.72	11.74	-
7.	Physics	M.Sc	-	-	-	14.52	27.78
8.	Computer Application	MCA	-	-	-	14.72	-
9.	Micro biology	M.Sc	-	-	-	10.35	-
10.	Computer Science	M.Sc	28.08	15.27	-	14.40	-

From the table 4.12 it is seen that the highest efficiency score of 47.72 is identified for mathematics in Non Autonomous College NA08 and the lowest efficiency score of 10.35 for microbiology in Non Autonomous College NA 09. The efficiency scores are moderate for all the courses offered in all these colleges. The following table presents the cost efficiency index of different courses in the Autonomous colleges.

Table-4.13

Cost Efficiency index of Different Courses in the Autonomous Colleges

Sl.No	Course	Degree	A01	A02	A03	A04	A05
1.	Tamil	M.A	-	2.88	2.90	2.17	-
2.	English	M.A	-	5.98	2.42	2.03	-
3.	Economics	M.A	3.29	5.42	3.57	3.70	-
4.	Commerce	M.Com	-	5.34	3.54	-	3.46
5.	Philosophy	M.A	3.11	-	-	2.02	-
6.	History	M.A	-	-	7.45	-	-
7.	Business Administration	MBA	-	-	4.28	-	-
8.	Mathematics	M.Sc	3.49	4.24	-	3.87	-
9.	Physics	M.Sc	3.77	4.36	2.44	3.67	-
10.	Chemistry	M.Sc	-	4.44	2.92	3.46	3.01
11.	Botany	M.Sc	-	3.86	-	4.11	-
12.	Computer Application	MCA	-	-	10.34	-	-
13.	Micro biology	M.Sc	-	3.23	2.14	-	-
14.	Computer Science	M.Sc	2.19	2.61	-	-	1.58
15.	Zoology	M.Sc	-	4.27	-	-	3.20

The table presents the cost efficiency index of different courses offered in the selected Autonomous Colleges. The highest cost efficiency index is for English with 5.98 in college A02. The lowest cost efficiency index is noticed for computer science 1.58 percent in Autonomous college A05. The following graphs present the index of cost efficiency of different courses in the Autonomous Colleges.

Figure 4.1

Cost Efficiency index of Different Courses in Autonomous College A01

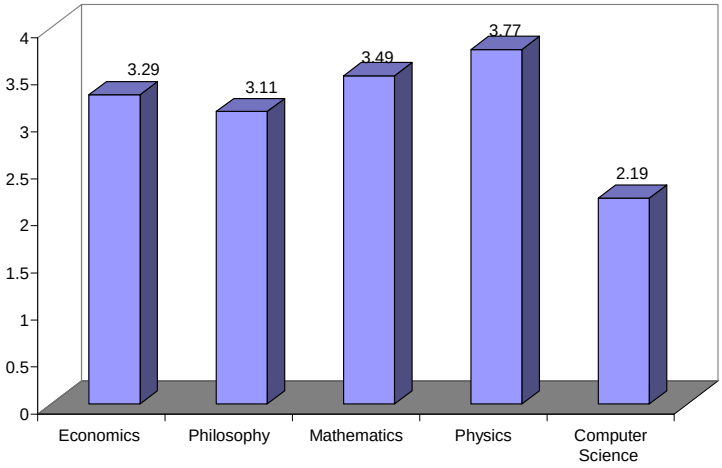


Figure 4.2

Cost Efficiency Index Of Different Courses In Autonomous College Ao2

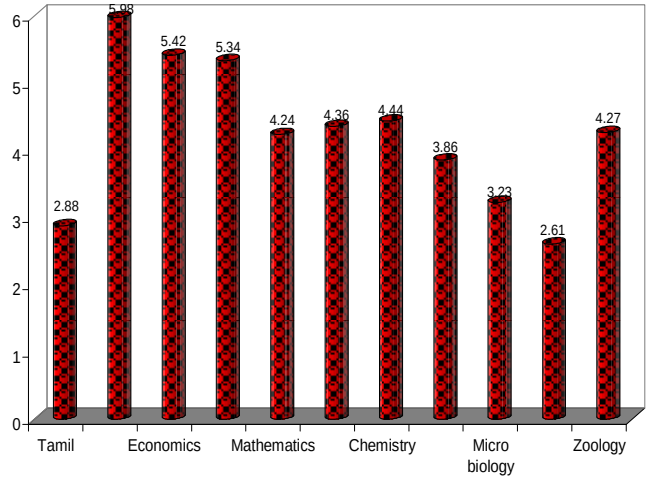


Figure 4.3

Cost Efficiency Index of Different Courses in Autonomous College A03

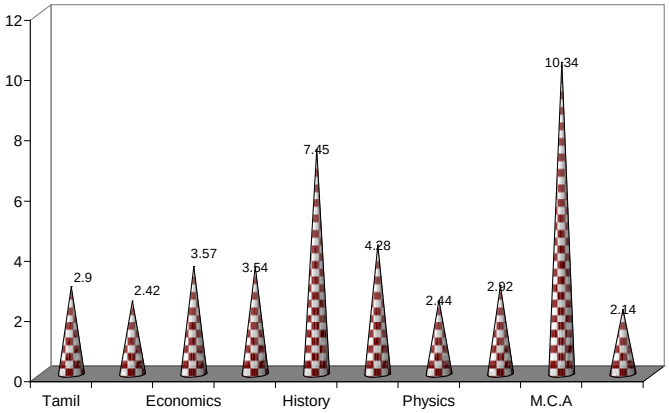


Figure 4.4

Cost Efficiency index of different courses in College A04

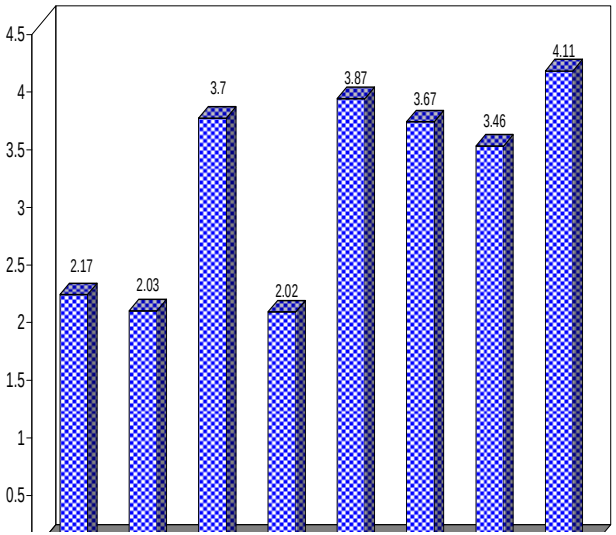


Figure 4.5

Cost Efficiency index of Different Courses in College A05

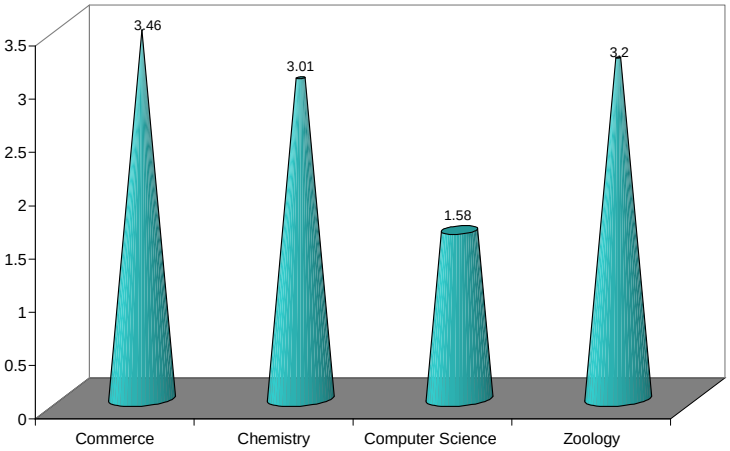


Table-4.14

Cost Efficiency index of Different Courses in the Non Autonomous Colleges

Sl. No	Course	Degree	NA06	NA07	NA08	NA09	NA10
1.	Economics	M.A	-	3.89	-	-	-
2.	Commerce	M.Com	3.13	3.92	2.73	2.91	4.30
3.	History	M.A	-	2.24	-	-	-
4.	Social Work	M.A	-	-	-	-	2.76
5.	Business Administration	MBA	-	-	-	1.99	-
6.	Mathematics	MSC	3.40	-	2.24	2.50	-
7.	Physics	MSC	-	-	-	3.37	-
8.	Chemistry	MSC	-	-	-	-	1.87
9.	Computer Application	MCA	-	-	-	2.39	-
10.	Micro biology	MSC	-	-	-	1.57	-
11.	Computer Science	MSC	1.34	0.71	-	2.19	-

It is seen from the table 4.14 that the highest cost efficiency index is identified for commerce, in Non Autonomous College A10 and the lowest cost efficiency index is recorded for computer science 0.71 percent in Non Autonomous College NA 07. the following graphs present the index of cost efficiency of different courses in the Non – Autonomous Colleges.

Figure 4.6
Cost Efficiency Index of Different Courses in Non Autonomous College NA06

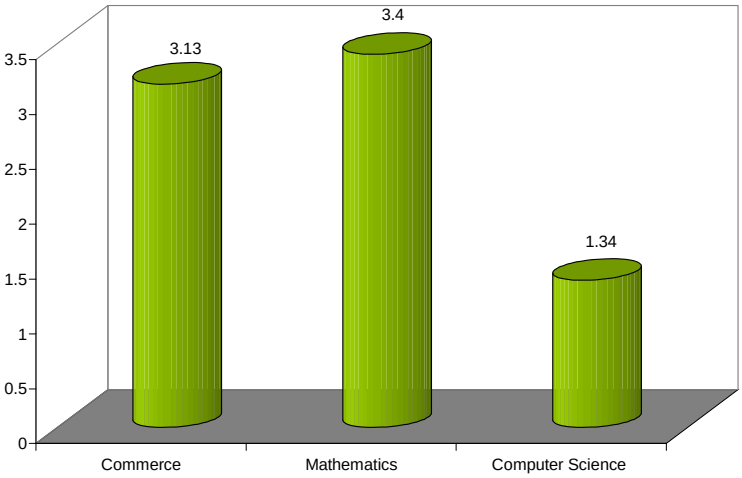


Figure 4.7

Cost Efficiency index of Different Courses in Non Autonomous College NA07

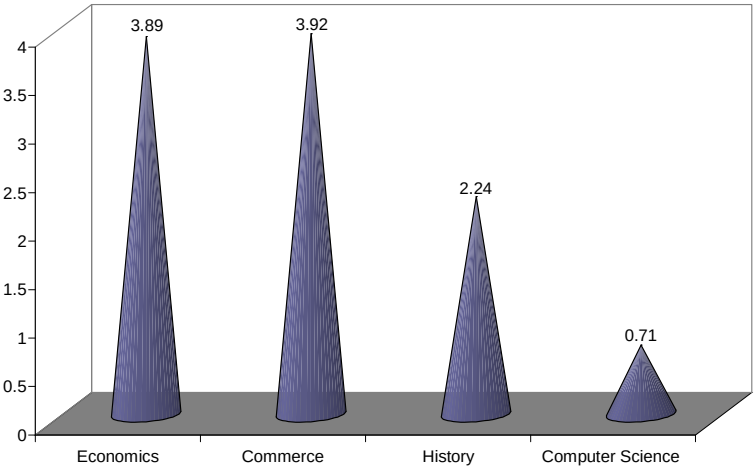


Figure 4.8

Cost Efficiency Index of Different Courses in Non Autonomous College NA08

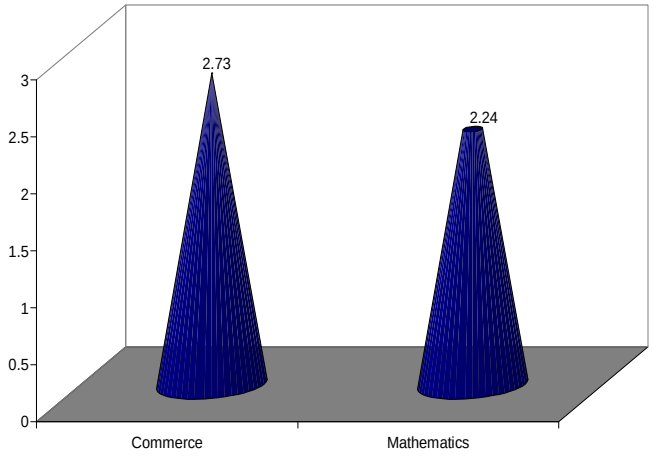


Figure 4.9

Cost Efficiency index of Different Courses in Non Autonomous College NA09

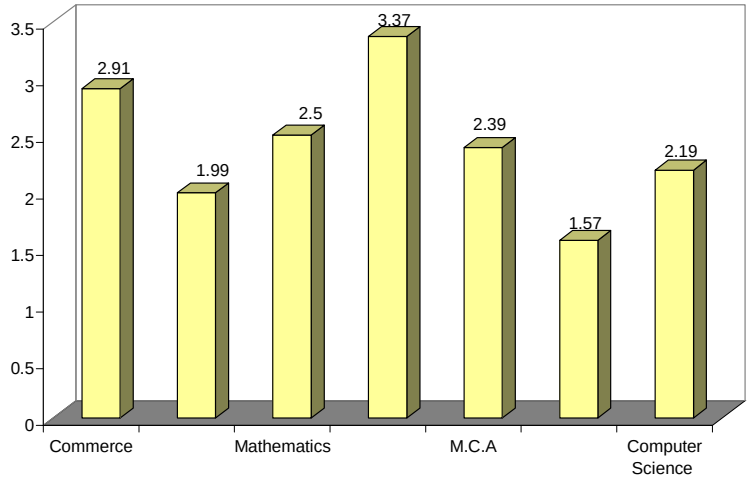
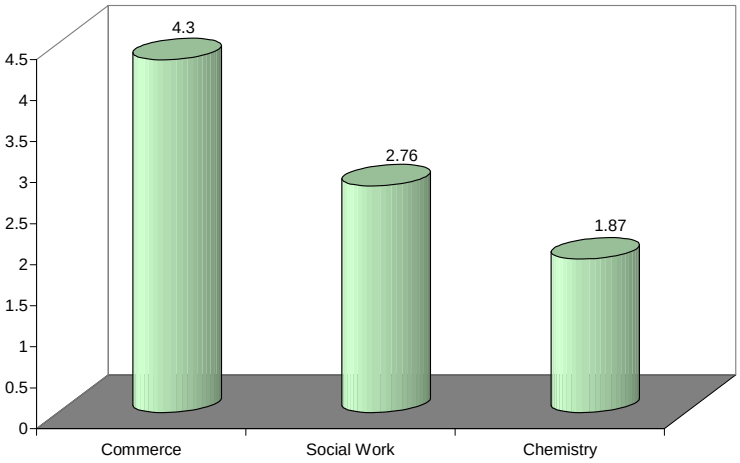


Figure 4.10

Cost Efficiency index of Different Courses in Non Autonomous College NA10



COST EFFICIENCY INDEX OF DIFFERENT COURSES IN THE SELECTED COLLEGES

The third objective of this study was to find out the cost-Efficiency Index (CEI) of each courses offered in the colleges included in the study. By Cost Efficiency Index the investigator means the ratio of efficiency to cost expressed in terms of percentage. For finding out the cost efficiency index the investigator took the figures of unit cost and efficiency score of each one of the courses. For this the investigator used the formula

$$\text{Cost Efficiency Index} = \frac{\text{Efficiency score}}{\text{Unit Cost}} \times 100$$

Following the formula the cost efficiency index was found out for each one of the courses offered in the selected colleges. Table 4.13 gives the cost efficiency index of different courses of the colleges included in the study. This has also been shown by means of graphs 4.1 to 4.5.

Table 4.24 (Autonomous)

Cost-Efficiency Index of Different Courses in the Selected College

Table 4.25 (Non-Autonomous)

Cost-Efficiency Index of Different Courses in the Selected College

Testing of the Hypotheses

The investigator formulated three hypotheses in this study to test the relationship between unit cost and efficiency among the selected colleges. The hypotheses formulated are

- ❖ There is no significant difference in the cost-efficiency index of each course in the selected colleges.
- ❖ There is no significant relationship between unit cost and efficiency of different courses in the selected colleges.
- ❖ There is no significant difference in the relationship between unit cost and efficiency for the different courses among the selected colleges.

Difference In The Cost Efficiency Index Between Courses In The Autonomous & Non-Autonomous Colleges

To test the first hypothesis the investigator applied chi-square test. This test was applied to find out whether the differences existing in the cost efficiency index between the different subjects in the selected colleges were significant. In the following pages the chi-square values for the cost efficiency index of different courses in the selected colleges have been presented. Table indicates cost-efficiency index of various courses.

Chi-square Results for Cost efficiency Index of Different courses of Autonomous College A01

$$X^2 = \sum \frac{(F_o - F_e)^2}{F_e} = 26.57$$

df = (C – 1) (r – 1)

= (12-1) (2-1) = 11

Table value of chi-square for 11 df is 24.72 at 0.01 level.

It is seen that the chi-square value of 26.57 with 11 degrees of freedom is significant at 0.01 levels. It indicates that there is significant difference between the cost

efficiency indices of different courses in Autonomous college A01.

The investigator worked out the chi-square values for the other colleges.

Table-4.15

Chi-Square results for efficiency of Different Courses of College A01

	Philosophy	Economics	Mathematics	Physics	M.C.A
F_o	488	425	480	562	426
Fe	476	476	476	476	476
Fo-Fe	12	-51	4	86	-50
$(Fo-Fe)^2$	144	2601	16	7396	2500
$\frac{Fo - Fe^2}{Fe}$	0.03	5.46	0.03	15.53	5.25
λ^2	0.30	5.46	0.03	15.53	5.25

$$\lambda^2 = \sum \frac{(Fo - Fe)^2}{Fe} = 26.57$$

df= (c-1) (r-1)

= (5-1) (2-1)

= 4

Table value of Chi-square for 4 df is 13.27 at 0.01 level.

From table 4.27 it is seen that the chi- square value of 26.57 with 4 degrees of freedom is significant at 0.01 level. It indicates that there is significant difference between the cost efficiency indices of different courses in college A01.

The investigator worked out the chi-square values for the other colleges. Table 4.28 presents the obtained chi-square values for the different college.

Table-4.16

Chi-squares values for efficiency of the different courses among the Selected Colleges

Sl.No	College Code	Chi-Square value	Degrees of freedom	Level of significance	Remarks
1.	A01	26.57	4	0.01	Hypothesis not confirmed
2.	A02	116.78	10	0.01	Hypothesis not confirmed
3.	A03	432.23	9	0.01	Hypothesis not confirmed
4.	A04	118.77	1	0.01	Hypothesis not Confirmed
5.	A05	20.70	3	0.01	Hypothesis not Confirmed
6.	NA06	9.83	2	0.01	Hypothesis confirmed
7.	NA07	70.83	3	0.01	Hypothesis not confirmed
8.	NA08	1.23	1	0.01	Hypothesis confirmed
9.	NA09	72.34	6	0.01	Hypothesis not confirmed
10.	NA10	24.93	2	0.01	Hypothesis not confirmed

In the case of NA 06 and NA 08 the differences in the efficiency scores were not significant as the calculated values Chi square were lower (0.01 level) than the

corresponding table value. In the case of remaining colleges the differences were significant.

Correlation study:

Table-4.17

Correlation Coefficient Between unit cost and Efficiency for Different courses in the selected colleges.

Sl.No	College Code	Value of 'r'	Result
1.	A02	0.65	High positive correlation
2.	A03	0.32	Low positive correlation
3.	A04	0.22	Low positive correlation
4.	NA09	0.48	Substantive positive correlation

From the table 4.29 it could be seen that there is high positive correlation between Unit cost and Efficiency for different courses in Autonomous college A02. There is low positive correlation for Autonomous colleges A03 and A04 between Unit cost and Efficiency for different courses. There is substantive positive correlation between Unit cost and Efficiency for different courses in Non Autonomous College NA09.

Table-4.18

Correlation co – efficient 'r' in respect of College A02 and A03

Sl.No	College Code	No.of Courses (size)	Value of 'r'
1.	A02	11	0.65
2.	A03	10	0.32

The table above is the correlation co – efficient are in respect of college A02 and A03

Table-4.19

Difference between correlation of unit cost and efficiency among the colleges

Sl.No	Correlation of colleges	Obtained value	Result
1.	A02 and A03	0.73	High positive correlation
2.	A02 and A04	0.31	Low positive correlation
3.	A02 and NA09	0.88	Very high positive correlation
4.	A03 and A04	0.34	Low positive correlation
5.	A03 and NA09	0.25	Low positive correlation
6.	A04 and NA09	0.54	Substantive positive correlation

It is manifest the above table that the significant difference between the correlation of unit cost and efficiency among the Autonomous colleges A02 and Autonomous college A03, Autonomous college A02 and Autonomous college A04, Autonomous college A02 and Non autonomous college NA09, Autonomous college A03 and Autonomous college A04, Autonomous college A03 and Non Autonomous College NA09, Autonomous college A04 and Non Autonomous college NA09

Relation Between Unit Cost And Efficiency Of Different Courses In The Selected Colleges

To test the hypothesis regarding the relationship between unit cost and efficiency of different courses in the selected colleges, the investigator applied pearsonian formula to derive the correlation coefficient. For obtaining the correlation the two variables namely unit cost and efficiency were considered. Treating unit cost of each course as variable 'X' and its corresponding efficiency as variable 'Y', the investigator worked out the correlation coefficient. The detailed analysis of the procedure involved in finding the value of the correlation coefficient has been presented, in Table 4.16 for SMC. In respect
Of the remaining colleges only the value of the correlation coefficient arrived at have been presented (vide Table 4.17).

EMERGING TRENDS IN HIGHER EDUCATION

Change is the elixir of life. Change is inevitable. In the context of liberalization, privatization and globalization there is a world wide competition in every walk of human activity. It is highly imperative to be alert to face the world full of competitions Whatever we want and try to achieve should have a direct bearing on the quality standards. Educationists should become increasingly aware of the process of change and try to design courses, curricula and content. The objectives are likely to be realized by revamping the skills of teachers by enhancing the quality of teaching, class room communication, and the quality of team efforts thereby ensuring by the of all stake holders of educational endeavours.

In the globalised context, the learner is the customer. Educational managers do well to ensure the product quality and service quality. All individuals have to contribute to the quality of product, namely the learners, service and management ensuring the overall credibility of the institution. In the educational setting, service quality means focusing the attention on all educational services, particularly the interface between the institute and industry and between the teacher and learner. The global perspectives of educational sector are analyzed here:

Quality assurance :

Globalization has promoted the quality of institutions. A student seeks admission with the hope of getting quality education in the educational institution which is chosen by him. Quality teaching, quality learning, experiential learning and blended learning are mantras which highlight the quality of education. Internal quality assurance cells are established in colleges.

It takes care of quality course curriculum and content quality methods and strategies of communication to achieve the course objectives and quality methods. It will also develop quality methods and strategies of testing and evaluation. The quality cell ensures enhancement of the quality of life and status of the members of the staff as individuals and as members of groups in an educational institution. The quality of the life of the learners is of paramount importance.

The quality assurance cell also strives hard to ensure the quality performance of the learners. The end results alone will not be taken into account for quality

assessment. The means or processes through which the final results are achieved are given importance and l weight.

The quality organization ensures healthy relationship amongst the members of the organization. Quality life also is ensured among the teachers and the learners. Alumni associations acts as a link in ensuring quality life of the learners even after the learners complete their course of study. It will result in greater mutual benefits.

Placement assurance :

Almost all institutions of higher education are aware of placement assurance. They appoint a placement officer who looks after the job opportunities of the students. The placement officer has contact with industries and corporate sectors. He arranges campus interviews in the institution for not only for his own students but also for students from other educational institutions.

Tie-up for placement and MoU :

Globalisation has also given the possibility of creating tie up with industries for placement and also promoted Memorandum of Understanding with industries. The companies who conduct placement interview want to know what the students actually desire to become. They select by screening techniques, such as written test, group discussion and intervier. Establishing MoU with corporate sectors is a credit to the educational institution.

Infrastructure :

Globalization has given a chance to improve the infrastructure of institutions. Both parents and students are eager to know about the infrastructure of the educational institution before they seck admission in colleges. Spacious and airy classrooms with lighting facilities are their expectation. Science students want to know about the lab oratory facilities with modern sophisticated instruments and chemicals. Good hostel facility, sports facility, library facility and toilet facility are the other things they expect. An institution with good transport facility is also preferred by the students. A canteen which serves the student with hygienic food is always welcome by them. Drinking water is a very important factor which is a part of the infrastructure of the institution. Protected and purified drinking water is given to students who are the clients of the educational sector.

Teaching aids like OHP, LCD power point projectors and computers have become essential for all the departments of educational institutions. Internet browsing centre, Xerox centre, students' rest room, teachers' rest room and gymnasium are provided to students in almost all educational institutions of higher education. The infrastructure of the educational institution also determines the quality of the organization.

Because of globalization the libraries are well stocked with books and journals both national and international. Students have the opportunity of getting standard international books and journals for their reference and they also have the opportunity of getting research materials and literature through internet.

Globalization is a boon for the development of infrastructure of the institution.

Conducting training programmes :

After globalization because of the development of competition among the educational institutions, the institutions have started rendering training programmes for the learners. Training in soft skill development, paper presentation, group discussion and techniques interview are conducted regularly for the betterment and job opportunities of the learners. Each institution tries to print a quality brand to attract more learners towards it. It also improves the business service of the institution.

Social responsibility :

Blood donation programmes, Aids awareness programmes and Environment awareness programmes are arranged periodically by Institutions. Red Cross Club and Red Ribbon Club engage the volunteers in social service. Nearby villages are adopted Health awareness camps are conducted in the adopted villages. Students have the opportunity of coaching economically backward children in the villages by conducting week-end classes. All these inculcate a social responsibility in the learners who understand life and adjust with the difficult situations which they come across in their student life.

Increase of competition :

Globalisation has increased the sense of competition among the educational institutions. Every institution wants to introduce new courses which are job oriented. Examples

are the Introduction of Computer Science, Information Technology, Bio-technology, Bio informatics, Genomics and proteomics, genetic engineering, gene technology, Microbial biotechnology, Fashion technology, Hotel Management and Catering Science and Computer application. Universities and Colleges offer MBA programmes with specialization in Finance, Marketing, System analysis, Banking and Hospital Management. The healthy competition among the institutions keeps the academic metabolism of the institutions very active.

Positioning and accreditation :

The Central Government and state governments insist upon getting a credit to institution. Based on the norms and guidelines of NAAC and AICTE the institutions are accredited. To get accredited institutions strive hard to improve the quality and to boost up the image with the credit awarded to it. Both the teachers and the learners are willingly taking part in the accreditation of the institution. Even after the accreditation they work hard to maintain the quality and achieve excellence in performance. An institution gets the position according to the credit given to it. Positioning keeps the institutions always vigilant about their processes of maintaining the quality of the teachers and the learners.

Choice based credit system and value added education

Many autonomous institutions have introduced choice based credit system and value added education in their curriculum. A science student can select his favourite subject in arts and the arts student can select his subject of

interest in science. This improves the interdisciplinary growth of the learner and also helps for the all round development of his personality. The value added education helps the learner to achieve his objectives and attain values necessary for leading a complete life.

Part-time Certificate Courses :

Globalisation has also helped the institutions of higher education to conduct part-time institutional certificate courses and university certificate courses on their campus. A learner gets the chance of improving and developing his knowledge in other subjects also. At the same time the certificate courses also help the learners for getting better placement. The learners have also felt the need of gaining knowledge in different subjects which will uplift their personality and lay a strong foundation for their successful and prosperous life in future.

Study abroad :

Globalisation has opened the way for the learners to continue their higher studies abroad. Many foreign universities have reduced their fees for the courses offered by them. They also give scholarships to the learners. Countries like England, Australia, Germany, New Sealand and Russia have reduced their tuition fees.

Value Ethics :

All educational endeavours are built upon a sound and solid foundation of highest ethical standards, virtues and values. They have thoroughly understood the need to build up modern India with their learners endowed with ethical virtues and values. It is also a welcoming factor

which will strengthen our nation and promote national integrity.

Communication skill in foreign languages *:*

English has been established as a language of global communication and a language of opportunities. A high degree of proficiency in English and excellent communication skills enhance the employability of students. In view of the increasing importance of English for career purposes, universities and institutions are offering courses in communication skills as part of their general English course. Globalization also has promoted the learning of other foreign languages like German, French, Japanese, Spanish and Chinese. If a learner is interested in developing his communication skills, he can join courses offered by universities and colleges. Learning one more foreign language will make the chances of the learner bright for employability.

Promoting Research activities *:*

Formerly learners had to go to a university for higher studies after completing their post graduation in colleges. But now research facilities are available in colleges themselves. The learner can very well pursue his research work in the college as all a resources are available there. Facilitating research activity in colleges is the positive outcome of globalization. Quality guides are guiding the research work of their research scholars. Some of the institutions are publishing their our journals to promote research activity of the learners.

'E'learning facilities :

Globalisation has made possible 'E' learning. Many resource materials are available in 'E' form. Development of Information Technology has made it very easy to access 'E' learning. Online examinations are also conducted. Many institutions have established 'E' libraries.

Conclusion :

Globalization has changed the total educational scenario. The change occurring in educational institutions has led them towards achieving their goals and objectives resulting in the enhancement of quality of environment. It has resulted in the enhancement of the quality of infrastructure of the organization and the quality of the life of the members of the system.

HIGHER EDUCATION AND THE CHANGING ROLE

It is time to take a look at the priorities of our times as far as social development through education is concerned. If the purpose of education is to provide the individual with the knowledge essential for living a satisfying life in closer harmony with nature and fellow beings, where the individual is at liberty to pursue legitimate acts for self-fulfillment, if the purpose is to engender the noble desire in the individual to engaged himself in the adventure of putting into practice socially beneficial ideas, if the purpose is to create a human society where outward differences will not be emphasized but the basic similarities are stressed so that individuals feel that they are useful to society through sharing their wisdom and pursuing the meaning of life, the present education

system has to be replaced by a system based on a holistic and well-integrated view of human existence on Planet Earth.

Humanizing Development

For this purpose, development priorities have to be set for the benefit of all and not just for the rich sectors of the world and the rich sectors of the nation. The term 'development' has to be used in a wider sense referring to the development of entire socio-cultural matrix. Portes, (c.f., Pandey, 1985) summarizing the current connotation of development, concludes that the term development is used consistently to convey economic, social and cultural transformation. Portes defines development as follows:

"Development can be defined as a complex of three main criteria: (1) Economically, sharp and sustained increases in national product; generation of centers of self-sustained, (2) Socially, redistribution of national income on an egalitarian basis; in corporation of marginal masses into the money economy, (3) Culturally, emergence of a few national self-image, confident of the future and willing to make sacrifice to bridge the gap with the developed world".

Portes further developed the definition of development, but the content of the previous definition is intact.

- Economic transformation, in the direction of sustained and rapid increase in the national product and the conquest of "decision centers" in manufacturing, which give the

country a measure of autonomy for guiding its future growth.

- Social transformation, in the direction of a more egalitarian distribution of income and widespread access of the population to "social goods" such as education, health service, adequate housing, recreational facilities and participation in political decision making.
- Cultural transformation, in the direction of reaffirmation of national identity and traditions. Emergence, in elite and masses alike, of a new self-mage which dispels feelings of second rate nationality and external subordination.

The properties of the definition of development, then, consist, of three distinct yet interrelated elements – economic, social and cultural. Economic development begets social and cultural transformations. The social and cultural transformation, in turn, determines economic growth. A definite kind of social and cultural approach to redistribution of economic rewards provides incentive for definite type of economic expansion. This gives rise to national self-image, which, in turn, induces people to make sacrifices, needed for the foundation of economic growth. In conclusion, the development in modern sense refers to the planned, directed and stimulated upward movement of the entire social system-economic and non-economic – in the direction of over-all desirable goal of a given society.

To achieve the target of development (in terms of social transformation) education is the best and most powerful instrument. The relationship of education to development has been greatly emphasized and examined in considerable depth in the last three decades because 'development' itself has been the priority of people all over the world, and especially in the so-called developing nations. The same impression is reflected in the views of distinguished economist and Nobel laureate Amartya Sen, (*c.f.,* Vajpai, 2000) when he started:

"The central issue is to expand the social opportunities open to people. In so far as these opportunities are compromised by counter-productive regulations and bureaucratic controls, the removal of these hindrances must been seen to be extremely important. But the creation of social opportunities on a broad basis requires much more educational facilities, and health care for all (irrespective of incomes and means), and public provisions for nutritional support and social security".

Sen attempted to spell out 'education' as one of the thrust areas for the movement for the country after the great independence movement. In India in the post-independence era central and state governments have been trying to strengthen the process of education, more specifically higher education, to build a new and progressive social order based on social justice. But the vast disparities in academic practices, facilities and standards make it practically impossible to implement a uniform set of reforms. If there is to be an academic revival it was realized that reform of education could no longer be postponed as progress in every sector of national life

depended largely on quality and adequacy of the system of higher education.

Various Commissions and Committees have reviewed the status of education and higher education in the country from time to time and made significant observations and recommendations. The Delors Commission (UNESCO, 1996) describes that education should be on 4 pillars – *learning to know, learning to do, learning to live together and learning to be.* The third aspect points to development of social and moral values.

Learning to live together is possible by developing an understanding of other people and an appreciation of interdependence i.e., in the spirit of respect for the values of pluralism, mutual understanding and peace. UNESCO adopted a declaration on higher education for the 21st century at World Conference on Higher Education held Paris in 1998. As a result of world conference, UNESCO (1998) has issued a set of recommendations, *World Declaration on higher education*, which has two distinct parts. In the first part, the UNESCO has envisioned higher education in terms of roles and functions that it should play in socio-cultural and economic development of nations "as a fundamental pillar of human rights, democracy, sustainable development and peace". In the second part, recommendations are made for concrete and specific steps (priority actions) that need to be taken at national and international levels for change and development of higher education and overall to enhance its quality and relevance. The National Knowledge Commission, 2006 Note features research by university faculty members as an important element of improving the quality of universities through

enhanced teaching performance and knowledge creation. In the section on Universities, the Note states:

"There are synergies between teaching and research that enrich each other. And it is the universities that are that are the natural home research. What is more, for universities, research is essential in the pursuit of academic excellence". The Note further states "The research outputs of these universities shall be vital contributors to India's socio-economic development and progress in science and technology".

A review of the observations and recommendations of various commissions/committees and the debates on the subject at various fora indicate that there are four major issues in higher education which need to be addressed. These are quantitative expansion and access, qualitative assurance, quality research and governance.

Primary Focus: Teaching or Research

The quality of teaching in higher education goes along with quality of research. One of the reasons for poor quality of education in India is that we are lagging far behind in terms of research. According to Human Development Report 2002, 'India could claim only one patent per million residents in 1998". The CSIR Report also reveals that "in the entire history of CSIR of India, only 3 out of 20,000 papers published by the scientists have been sited 100 times against a world average of one in every 250". In universities, teachers conduct research only for the sake of producing Ph.D. degrees. Although some 11,000 Ph.D. are being produced every year in our universities, the

research topics of various disciplines have no relevance to the present life.

A two-pronged strategy is required to improve the quality of research. The budgetary allocations for research need to be substantially increased and research careers should be more attractive than teaching. At the same time, research must be socially and economically more relevant which calls for a greater interface between universities, research institutions and various sectors of society like industry, agriculture, infra-structure, etc.

Research in Pursuit of Social Needs

Research enriches human society. The progress we enjoy at present is the result of the research conducted by men in the different phases of human history; the researches conducted in the period of Industrial Revolution activated the process of industrial development. Many of the problems faced by society namely,. poverty, over population, depletion of natural resources and ecological imbalance can be solved through research. If we analyze the history of mankind, especially the history of developed countries, we can see that developments were mainly due to the advancement in research.

Research in social sciences is always undertaken on the basis of emerging problems of society. For example, after the Second World War, most of the research works in social sciences were done with the following themes; how to bring about social stability? How to usher social development? How would the system hold in the face of social changes? and how power would be located and

exercised?. All these problems called for the study of man in relation to the social institutions as well as environment.

The question arises: Can social problems be studied scientifically? Scientific or empirical study is often referrred to as applied research, because it has a fairly direct immediate application to a real world situation. For example, empirical research on poverty alleviation may help government devise successful income maintenance and social welfare policies. If social problems can be studied scientifically, they can produce scientific knowledge about social phenomena.

The social-economic structure of a society has an impact on research. Developing countries accord low priority to research. On the Research & Development front, developed countries account for 85% of worldwide R&D investment. This is in contrast with a total of 11% investment by China, India, Brazil and East Asia and four per cent by rest of the world. The scientific research orientation and proper planning towards the existing factor endowments help organize resources in a development perspective. It is essential for development of human resources. The expenditure rendered for defence, entertainment etc. can be slightly reduced and research can be promoted. Absence of proper research and man power planning is the reason for the under-utilization and mis-utilization of human resources.

An anatomy of the education system in the third world countries reveals that there is incompatibility between the social needs and education system. The education system in these countries is basically modeled on the colonial pattern of education system. The social cost

of education sometime exceeds social benefit. In order to fulfill the social needs, the pattern of education especially the nature of research should be redesigned. Any social problem can be solved by redefining the education system and redesigning the nature of research.

In the age of Globalization and Liberalization international education agencies will have a direct impact on the education needs of the developing countries. The process of Globalization of education should be directed towards advancement of research for meeting social needs in the New Millennium. The gap between policy-making and research generalization should be bridged as far as possible. In the knowledge-based society of the New Millennium, public policies are required to be framed on the research-based knowledge considering the needs of the society. Only then social science research can be realistic and utilitarian.

Linkages between Higher Education Institutions and NGOs

It is disheartening to note that our higher education system is urban oriented in the matters of location of facilities, allocation of finance and content of curriculum. To minimize this orientation direct linkage between institutions of higher education and the masses is the need of the hour. It will help in functional use to disseminate the knowledge created and skills developed at the institutions for shaping the public attitude towards the desired and directed goals of development. As the NGOs of our country are capable of reaching the deprived masses or disadvantaged groups, they can be the link road between

the institutions of higher education and society. Due to a high level of expertise combined with insight, empathy and flexibility of approach, many times NGOs are more successful than any other body in the promotion of education and training in the informal sector. In the First Five Year Plan itself it was noted that NGO's would have to bear the major responsibility for organizing various activities in different fields of human welfare and development. Over the years this recognition has increased in scope and emphasis. The Seventh Plan explicitly expressed the intention to involve NGOs in the implementation of developmental programs, particularly in rural areas.

The institutions of higher education and NGOs should go hand in hand to strengthen the efforts of government in accelerating the community/rural development programs in the form of developing scientific attitude, appropriate skills in the people. Both the agencies can work together in promoting, teaching and training, research and extension and nation building and cohesion activities for integrated development of the society.

Suggestions

The paper laments non-application of research findings to real life situations. A strong case is made out for dissemination of results of research to the end users. It is proposed that:

(1) it should be made mandatory for each thesis/project report to include a section on "Application to Societal needs" wherein the

researcher must examine the practicability of implementation of the suggestions made.

(2) the concept of 'Research Application Cell' in each university/institute is floated and a pyramid structure is proposed at the state and national levels.

(3) joint efforts with NGOs can be made to identify the need - based courses and suggest the same at higher education level.

(4) joint efforts can also be made to create awareness in the masses. NGOs can provide the necessary data to carry out socially relevant research projects.

(5) NGOs can assist universities to undertake and implement projects like VPP (Village Promotion Progamme) and VAP (Village Adoption Progamme) etc. to promote rural mass.

(6) the results of the research activities should be infused into the local community with the help of NGOs.

(7) NGOs can specifically cater to needs of the special population like disabled, differently abled, minorities, disabled due to socio-economic, cultural deprivations, natural and man-made calamities.

There are certainly many more steps to be taken to improve the quality of higher education. Therefore it is necessary that the road map of the future higher education scene is to be charted clearly to facilitate the transition of India into a developed nation and the strongest nation in the Asian continent over the next 50 years. Othervise sooner or later we would be pushed to a corner and shown the door. Let us avoid that kind of a disaster and

demonstrate that we have the capability to kick start. Only then we will be in a position to achieve the purpose of education i.e., development of capability for deep thinking and imbibing the high values of our culture, so that we can shape our future. Education provides us with a discipline to face the rigours of practical life and bestow confidence to deal with complex and challenging situations.

Finally, let us recall Gurudev Rabindra Nath Tagore's views about the real destination of our education:

"The highest education is that which does not merely give us information but makes our life in harmony with all existence".

ROLE OF E-LEARNING IN HIGHER EDUCATION

In India, globalization has generated a good vibration life for higher education. The new era of technology enabled education on "eLearning" is displacing the outdated traditional method of learning. Learning is also a broader term that 'On-Line Learning' and 'M-learning'. The uniqueness of eLearning is that,it provides the learner the opportunity to learn anytime, anywhere. E-learning is the only method of learning, where tree distinct learning styles of auditory learniers,visual learners, and kinesthetic learners are incorpated.

Information Technology is emerging to be the technology of the 21st century. The paradigm shift from industrial society to information society had already become a reality! It is indeed a high time to think about integrating IT in all facets of higher education level. The stiff challenges offered by the rapid changes that occurrence in the IT based high tech industries.

Organizations are left with little choice in integrating deskilling in to their redevelopment plan. The integration of IT in higher education will itself engender several broader innovations. IT based teaching and learning strategies will open possibilities for designing new curricula and new methods of assessment to meet our educational objectives. IT can be used t to promote greater and more efficient and effectiveness of educational administration. Ready access to online data and information will also support effective decision-making at all levels

What is E-Learning?

The term E-Learning is rendered as eLearning, e-learning and E-learning and all those means electronic education. It is basically the online delivery of information, communication, training and learning.

E-learning : Definition

The delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material.

Requirements for implementing E-education

Taking on board many of the points raised above here are some requirements for a successful implementation of E-education. Clearly most of these need addressing before attempting to implement any electronically based education system.

- Provision of free or low cost access
- Collaboration to be encouraged between various organizations
- Mixture of different teaching models
- Closer monitoring of individual student progress
- Provision of greater support to motivate students where needed
- Standards require monitoring
- Readily scalable service with high bandwidth availability

Why e-learning is important for Higher Education?

A student who is learning in a way that uses information and communication technologies (ICTs) is usinge-learning . These interactive technologies support many different types of capability:

- Internet access to digital versions of materials unavailable locally internet access to search, and transactional services
- Interactive diagnostic or adaptive tutorials
- Interactive educational games
- Remote control access to local physical devices
- personalized information and guidance for learning support
- Simulations or models of scientific systems
- Communications tools for collaboration with other students and Teachers
- Tools for creativity and design
- Virtual reality environments for development and manipulation

E-Learning Technology Method in Higher Education

- **Computer Aided Learning-A Methodology for Continuing Education**

New communication and information technologies have become major resources for teaching and learning in higher education. Some of the most cost effective and appropriate ways to use computers and modern technologies is to have close contact between the teachers.

- **Web based Learning**

The wide range of applications that universities and other educational centers have made available on the web is amazing. The latest and the most proficient development in the information revolution is the E-Learning through World Wide Web. Now e-mail, computer conferencing and the Internet increase opportunities for students and teachers to converse and exchange work much more speedily than before. Web technology can now enrich learning opportunities like simulation technique with multimedia using latest computer software. It helps the students to develop insight of the object and to collect information, which may not be immediately available in the library. Proper instructional strategies must be adopted to make the web based learning more effective. Instructional design is a systematic approach to designing effective instruction. Instructional development provides a process and frame work for systematically planning, developing and adapting instruction based on identifiable learner needs and content requirements.

- **Multimedia based learning**

Multimedia is highly useful in Research,Teaching, and Learning.In research,review of related and earlier studies can be done through various search engines.The concurrent developments in multimedia, telecommunications and computing technologies, largely driven by consumer electronics markets, have made available convenient tools whose exploitation for education purpose poses creative challenges to academic world.

Benefits of e-Learning

- **Integration:**

All institutions, research institutions, regulatory bodies, professionals, academicians and students can be integrated on regional, state, national and international level. Sharing of knowledge, experience, infrastructure and technology will enhance the effective and efficient utilization of available resources. Students can have an access to unlimited storehouse of information at any hour and from any place.

- **Access to best faculty and quality study**

Material: Since eLearning has ability to cover distances, a few good teachers can be scaled up. Faculty availability is not restricted by geography or even time because of recorded classrooms. The expert teachers also will be identified and honored by the demand for them from learners.

Human bias:

eLearning helps removes the bias of sex, religion, colors, caste etc.

Dust free environment:

Unlike in chalk and talk method, learning atmosphere becomes dust free.

- **Individualized instruction:**

eLearning also offers individualized instruction, which print media cannot provide. It makes learning exciting, engaging and compelling. Blended programmers can integrate eLearning with face-to-face workshops, coaching, action learning and a huge range of other learning

Methods to cover a range of needs, styles and approaches. Private messaging readily supports these exchanges while protecting the participants' privacy. Based on the individual and/or group needs, interests, career objectives and job profiles, lesson modules can be chosen.

- **Fast learner - Slow learner mechanism:**

Quality of output information can be adjusted to the required level and are flexible.eLearning emphasizes continuous learning and promotes "just-in-time" and "just enough" learning. Both slow and fast learners can take their own time of learning because they do need separate timings. And hence the overall stress in the classroom environment can be removed.

- **Flexible:**

On-demand availability enables them to remove stress. eLearning empowers you to take charge of your learning and to access online library resources. Since the playback of recorded sessions is possible, absentees can

learn the lessons when they are back and the slow learners can listen for
more than one time

e-Learning inHigher Education: a SWOT Analysis

The main strengths and weaknesses of the new technologies and applications to support/complement the teaching/learning process in higher education institutions.

- **Strengths**

  Flexible access to information resources.

  Easier connections between teachers and students.

  Actualised information

  Guidance to study

- **Weaknesses**

  Difficulty to attract participants.

  Requires skills to produce quality contents.

  Requires time – in synchronous activities.

  Requires teacher's availability and motivation

- **Opportunities**

Competitive pressures

Technology accessibility to everybody, from home or campus.

Integrated initiatives (e.g. Campus Virtuais, …)

Cooperation between institutions

Partnerships in teaching and research projects

Mobility (post-graduations, student placements, etc

- **Threats**

If dosing between models is not adequate everything can fail.

If the teacher does not "answer"

Inability of continuing follow-up of the new

developments in the field of Open Access and scientific publication in general

Conclusions

We believe that together with the traditional classroom model a truly multimedia-enabled interactive technology platform for an effective and efficient learning experience, allowing a self-paced mode of learning, complemented by web-based guidance from teachers can answer to the students' Requirements of the present and of the future. It is important For institutions willing to embarking on an e-learning. In this Knowledge era the e-Facilities provided to the students would help them to become Globally competitive. Quality students are generated who can meet the challenging requirements of the emerging knowledge economy. Education system has not changed but role of student, teacher and institution has changed.

WEB BASED LEARNING

The present world of technology has made great changes in every walks of mankind. The strategies of teaching and learning have reached the level of making virtual Universities and classroom without teachers. Learning through web is a fascinating and innovative technique and the learner must e motivated to learn more. As the sphere of knowledge is ever expanding, continuous learning online is inevitable.

ONLINE LEARNING

Internet based educational technologies have raised expectations that the quality of education and its delivers can be improved.

ONLINE TEACHING

The interaction happens between teacher and the student. The teacher has an active role and the learners are guided and receive precise instructions as to what they are to learn.

ONLINE TUTORIALS

The interaction takes between the student and learning system. Feedback is given by the system implemented in the program.

ONLINE ASSIGNMENT

The interaction happens between the student and tutors communication via an internet based learning platform. The teacher gives individual feedback to the students.

ONLINE DISCUSSION

The focus is upon group learning and interaction among learners. Work in group to critical reflection and thus contribute to the building up and maintenance of values.

Conclusion

The ultimate goal of any plan for educational technology should reflect two intentions, equitable access

to technology for all students and educators, and comparable levels of educational technology for all educational institutions. Thus technology can become the force that equalizes educational opportunities of all regardless of location and social and economic factors.

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REFERENCE

1. Educational Technology-Dr. Vanaja.M
2. eLearning and Applications, www2. academee.com/html/consultancy.html
3. Essentials of Educational Technology- R.A.Sharma
4. GOI(2007) National Knowledge Commission, Note on Higher Education (Nov. 29, 2006), p. 4.
5. GOI(2007) National Knowledge Commission, Note on Higher Education (Nov. 29, 2006), p. 4.
6. Government of India, 1950, *University Education Commission, (1948-49), Report,* Government of India, New Delhi.
7. Government of India, 1950, *University Education Commission, (1948-49), Report,* Government of India, New Delhi.
8. Government of India, 1950, *University Education Commission, (1948-49), Report,* Government of India, New Delhi.
9. Government of India, 1966, *Report of the Education Commission (1964-66) Education and National Development,* Government of India, New Delhi.
10. Government of India, 1966, *Report of the Education Commission (1964-66) Education and National Development,* Government of India, New Delhi.
11. Government of India, 1966, *Report of the Education Commission (1964-66) Education and National Development,* Government of India, New Delhi.
12. Gupta, P V, (2004), Higher Education in India in the New Millennium: Challenges and Remedies, 2004, University News AIU, Vol. 42 No. 50, New Delhi.

13. Gupta, P V, (2004), Higher Education in India in the New Millennium: Challenges and Remedies, 2004, University News AIU, Vol. 42 No. 50, New Delhi.
14. Higher Education- V.K.Rao
15. Id. at p.17.
16. Improving University and College Teaching- Sunil Belari Mohanty
17. Introduction to Educational Technology-K.Sampath and A.Panneerselvam.
18. Joseph, Thomas, (2006), Higher Education in the Changing Global Scenario, University News AIU, Vol. 44 No. 14, New Delhi.
19. Joseph, Thomas, (2006), Higher Education in the Changing Global Scenario, University News AIU, Vol. 44 No. 14, New Delhi.
20. Kohli, A. S. & Habeebul Rahman, (2004), Universities and Society; Exploring Ways for Better Collaboration University News AIU, Vol. 42 No. 46, New Delhi.
21. Kohli, A. S. & Habeebul Rahman, (2004), Universities and Society; Exploring Ways for Better Collaboration University News AIU, Vol. 42 No. 46, New Delhi.
22. Pandey, R., (1986), *Sociology and Development,* Mittal Publications, Delhi.
23. Pandey, R., (1986), *Sociology and Development,* Mittal Publications, Delhi.
24. Rastogi, Shaifali, (2000), Higher Education in the Context of Development: A Sociological Perspective, in Powar, K.B., (Editor), Higher Education in Development AIU, pp.197-207, New Delhi.

25. Rastogi, Shaifali, (2000), Higher Education in the Context of Development: A Sociological Perspective, in Powar, K.B., (Editor), Higher Education in Development AIU, pp.197-207, New Delhi.
26. Schukoske, Jane E, (2007), NKC's Recommendations on Inter-relating Research, Teaching and Community Service in Universities: A Perspective forms the US, University News AIU, Vol. 45 No. 48, New Delhi.
27. Schukoske, Jane E, (2007), NKC's Recommendations on Inter-relating Research, Teaching and Community Service in Universities: A Perspective forms the US, University News AIU, Vol. 45 No. 48, New Delhi.
28. Singh, P., 1999, Education an Instrument of Change, *Hindustan Times,* New Delhi, November 2.
29. Singh, P., 1999, Education an Instrument of Change, *Hindustan Times,* New Delhi, November 2.
30. Technology in Higher Education-Mujibul Hasan Siddiqui
31. Technology integration in education-Prof.Rameshchandra
32. The evidence for Quality- E.Grady Bogue, Robert .L.Saunders
33. UNESCO, 1996, *Learning the Treasure Within (Delors Report),* UNESCO, Paris.
34. UNESCO, 1996, *Learning the Treasure Within (Delors Report),* UNESCO, Paris.
35. UNESCO, 1998, Higher Education in the Twenty-first Century, Vision and Action – Final Report, UNESCO, Paris.

36. UNESCO, 1998, Higher Education in the Twenty-first Century, Vision and Action – Final Report, UNESCO, Paris.
37. Vajpai, A.B., 2000, India is on the Move, *Employment News,* New Delhi, 1-7, January, p. 1-2.
38. Vajpai, A.B., 2000, India is on the Move, *Employment News,* New Delhi, 1-7, January, p. 1-2.