



COST-EFFECTIVENESS COMPARISON OF DISTANCE EDUCATION IN INDONESIA, BANGLADESH AND PAKISTAN

Seema Naheed,

PhD Student, Faculty of Education,
Allama Iqbal Open University, Islamabad – Pakistan.



Ms. Seema Naheed is teaching at University Laboratory High School, Institute of Education and Research, Punjab University Lahore, Pakistan. She is M. Phil. and a Research Scholar in the area of Education. She worked for 3 years for Primary Education Curriculum Reforms Project and Primary Education Project, Punjab as an author and editor. It was a collaborative effort of Government of Pakistan, UNICEF and World Bank to improve the quality of education in Pakistan. She extensively traveled in selected regions of Punjab for micro study of the books and teacher guides. She Participated and contributed in workshops, delivered lectures at

Directorate of Staff Development Lahore, to in-service teachers, high school principals and at Elementary Teachers Training Colleges of Punjab as a resource person. She worked as an active member of National Review Committee, Curriculum Wing, Islamabad several times. She is Author/ Editor of 6 Textbooks and 3 Teacher-guides, Punjab Textbook Board, Lahore. She edited: one academic journal Taleem e Zaviea for two years. She is author of several research articles. She is founder of University Laboratory High School, IER magazine. She remained an elected female member of Provincial Executive Committee, Pakistan Education Foundation.



COST-EFFECTIVENESS COMPARISON OF DISTANCE EDUCATION IN INDONESIA, BANGLADESH AND PAKISTAN

Seema Naheed,

PhD Student, Faculty of Education,
Allama Iqbal Open University, Islamabad – Pakistan.

ABSTRACT

This is a descriptive study based on analysis and comparison of B. Ed. at Bangladesh Open University (BOU) and Allama Iqbal Open University (AIU) Pakistan and degree level/SI teacher training programme at University Terbuka (UT) Indonesia. It was a non-linear input and output design of cost effectiveness analysis. The data of these items was collected; number of students enrolled, cost of study material, media support, course presentation (holding of workshop and tutorials), examination costs and costs of teaching department. The total and unit cost per student was calculated. The selected output variables for cost-effectiveness analysis were completion rate, student's satisfaction with programme and some important objectives of each selected programme. The result showed that unit cost was lowest at AIU and programme was the most cost effective due to economy of scale.

Key Words

Cost effectiveness analysis

This article is based upon Ph. D thesis of the author. The title of this thesis is "Cost Effectiveness Comparison of Distance Education in Indonesia, Bangladesh and Pakistan." The supervisor of thesis is Dr. Muhammad Ibrahim Khalid.

Indonesia, Bangladesh and Pakistan form a triangle in East Asia. The three Muslim countries are members of the Organization of E-9 Countries. The thickly populated area of these countries is homeland of 450 million people of the world (Rizvi and Naheed, 2005, p. 64). At one hand the three countries are confronted with the dilemma of scarce resources and economic decline that has many reasons, but on the other hand governments of these countries, with the help and assistance of non-government agencies, are trying to raise the access and standards of education, i.e. quality and quantity. Professional development is a right of teachers. Professional education requires skillful planning to manipulate resources in such a way that maximum number of teachers may be able to avail opportunities of training and retraining throughout their careers. Teacher education programme through distance and open learning system has made noticeable contribution for pre and in-service teacher development in developing and developed countries. In other words, distance education mode is widely used for pre-service and in-service teacher education. Like many developing countries of the world, the three member countries of E-9 i. e. Pakistan, Indonesia and Bangladesh, have developed distance and open learning system to carry-out plans to resolve the problem of shortage of trained teachers at all levels of education. Since economic resources are scarce, governments wish to spend resources on education wisely to achieve objectives with minimum costs, without compromising on quality. (Swanson, 1971, p.452; Garrison, 2000, p.1) Distance education is more than a mode for addressing the shortcomings of traditional educational system of a society at a particular stage of economy. It is becoming an integral part of learning environment. (Bork, 1991; Dhanrajan, 1998, 1999; Imfundo, 2002).

In the quest for addressing national issues, governments and societies demand a great degree of input into educational institutions (The World Bank, 1995, 1996; Borromeo, 2001; Government of Pakistan, 2001; UNESCO 2001). UNESCO (1967, p. 12) states that education comes into national planning from two angles. First; through the choice of the development targets for different levels and branches of education. Depending on the type of education, this choice will be made mainly for economic reasons (manpower training), or for social ends (the expansion of general education). It is not possible to distinguish between the two. General education is necessary basis for vocational and technical education. Moreover technical and vocational education requires some general education. Second; Education in national planning depends upon the allocation of funds for estimated expenditure i.e. building, equipment, operational cost etc. There is close relationship between choice of educational targets and allocation of resources. The sizes of targets determine the amount of financial resources. The actual available amount of resources determines the size and limits of educational plans. Thus educational plans are integrated with economic plans.

Distance education mode is essential establish to achieve the ambitious goals of national development in this region. The development of traditional education institutions especially for grown ups or for in service professionals is a luxury that is not available in developing countries. Dhanarajan (1998) argues that countries are no more contented, nor should they be, to limit the access of education for a handful fortunate persons who have urban accommodation, infrastructure, the knowledge of how, when, what, and resources to pay for them. Dhanarajan concludes that these aspects are basic for the scope of distance education in a country i.e. access, equality, cost effectiveness and cost efficiency. Society demands a return of investment in educational institutions that would lead to the solutions of social economic problems of a nation (Borromeo, 2001; Clark, 2001). This implies that society has full right of accountability, as society is not only the major founder of educational institutions but also the major beneficiary of the system. Institutions are scrutinized on the basis, as the general perception persists, that there is too wide gap between the need of society, spending on education and the products of educational institutions. (Botha, 2001; Mitchell, 2001; UNESCO, 2001, p. p. 5-6)

Education ministries typically absorb 5% of GDP and are often largest (non-defense) sector in the overall government budget. Moreover private spending on education are generally several points of GDP. All over the world a large proportion of income is allocated for education. In many less developed countries of the world, the amount of money spent on education is equivalent to developed countries but outcomes in terms of quality, employment, impact on later lives are much less as compared to developed countries. (World Bank, 2001) UNESCO comments (1980, p. 14) that the phrase cost of education is carelessly equated with expansion of education. It is necessary to define costs in terms of effectiveness. There are several methods to study the outcomes of spent money on educational organizations. Cost effectiveness analysis is one of the many methods of economic study of an organization. Webster's dictionary (1990) explains the words cost and effectiveness. "Cost" means to be priced at, be sold for, the cause to giving up of or loss of. (p. 195) "Effectiveness" means producing results or bringing about the result wanted, in force or operation, making a strong impression on the mind, and lastly active" (p. 277). The term effectiveness is widely used in the literature of distance education. Ash (2000) states that effectiveness relates inputs to the quality of graduates. Rumble (1997) states that effectiveness focuses upon the output and is a measure of how well an organization attains the goals set for it. In essence effectiveness is a measure of quality. It can be measured in numerous ways such as effectiveness against an absolute standard, as a measure of quality of the student's performance or as and a weighted average against a

range of variables. Economic study of educational organisations is an essential part of planning and development (Ansari, 1994, p. 64). There are two ways to spend money on programmes of educational institutions in a cost effective manner. First is to seek the cheapest way of achieving a target without compromising on quality and second; to seek improvements of targets with predetermined budget (Borromeo, 2001). As Yenbamrung (1994) states, cost effectiveness analysis, which attempts to relate costs to expected benefits is critically important to education because it can be used as a planning tool to help decision makers evaluate proposed educational system alternatives.

Every investment represents opportunity costs in which alternative opportunity to use the resources either for present consumption or for some other form of investment is sacrificed. Varied targets mean that maximum effect of cost in relation to output may be gained after spending the smallest possible amount. Cost- effectiveness analysis (CEA) refers to the analysis of cost and the effects of programmes. The purpose of CEA is to study whether achievement of stated objectives is at minimum cost. (UNESCO, 1980)

As stated by UNESCO (1997) “In case of input output study, inputs are expressed or valued in monetary figures and outputs are valued or expressed in non monetary terms, physical entity or some measurable terms.” Yenbamrung (1994) adds that when cost effectiveness is addressed, most studies tend to focus only on institutional cost effectiveness and ignore clientele and stake holder’s costs. Very few studies have viewed cost effectiveness from student standpoint, despite its critical effect on the success or failure of distance education efforts. The issue of student cost effectiveness should be taken into account when decisions are made concerning programme or course development. To a large extent, market place analysis increasingly governs the development of academic institutions and programmes.

Moreover, CEA is an instrument to improve the thinking within an organisation (UNESCO, 1997). Cost Effectiveness analysis is considered as a tool for improvement of educational institutions. After establishment of an institution this analysis is conducted to monitor the strengths and weaknesses of a system as demonstrated by the costs and benefits of all variables. Cost effectiveness analysis is a process, based on a broader analytical framework. The reason for analytical framework is monitoring and evaluation of certain organization (Marvin, 1982; UNESCO, 1997; Mitchell, 2001). In the planning stage the purpose of analysis is to seek the lowest cost alternative to achieve the specific objectives. (The World bank, 1995, p. 22) In the monitoring stage the purpose of C-E analysis is to find out what has been achieved viz., objectives and output, and at what cost. (UNESCO, 1997; World Bank, 2001)

OBJECTIVES:

1. To examine and calculate the total and average costs of some selected item of program.
2. To analyze student’s opportunity costs.
3. To calculate and analyze student’s satisfaction with the programme.
4. To analyse programme effectiveness in terms of student’s satisfaction in the context of their opportunity costs.

The study was based upon Cost-effectiveness analysis and comparison of degree level (S I) teacher education programme at University Terbuka Indonesia, B. Ed. Programme at Bangladesh Open University and B. Ed. Programme at Allama Iqbal Open University Pakistan

Economic approach means analysis of student's satisfaction with programme should also be analysed as an instrument of cost analysis. Bernadete (2001) quotes Taylor (1989) that the term cost effectiveness is increasingly used in the preview of cheap whereas the distinction between the two terms is necessary as due to misconception, the quality of distance education programmes is suffering especially in African countries. Analysis of student's satisfaction as a part of CEA tells about the quality of programmes in terms of effectiveness. Analysis of clientele satisfaction is a compulsory aspect of quality. The weak elements of selected programmes can be strengthened after knowing student's ideas. Various aspects of student's satisfaction and opportunity costs have been assessed to analyse programme effectiveness that is a contribution in the literature of distance education.

The instruments that were developed to collect data about costs and other relevant features of programme were questionnaires. There were two questionnaires. The first questionnaire was administered to the management of programme. The elements in administration questionnaire were;

1-Enrolment, 2-completion, 3-examinations, 4-radio and television transmissions, 5-course presentation costs (tutorial and workshop), 6-printed material, 7-departmental/establishment costs,

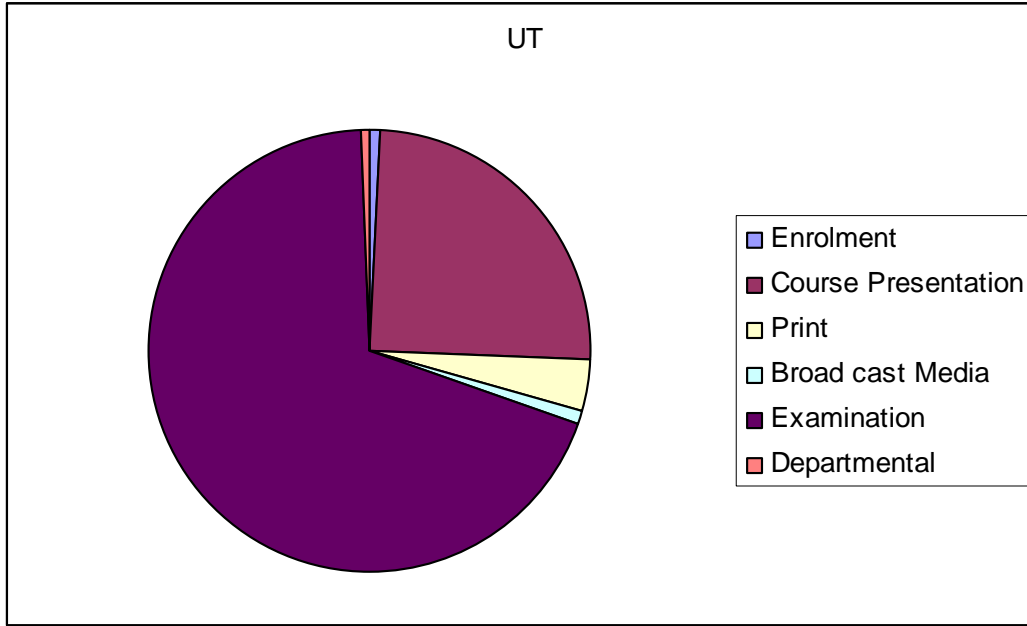
The selected output variables for cost-effectiveness analysis were; (a) Completion rate (b) Student's satisfaction with programme. U.S. dollar was the standard currency to show the equality of costs for comparison. The value of currencies of Indonesia, Bangladesh and Pakistan was converted in U.S. dollars for comparison. The standard date for the calculation of exchange rate was 19-2-04 as the data analyses started from this date. The value of currencies for data analysis of this study was;

1\$ = 58.65 Takas, 56.35 Rupees and 8402 Indonesian Rupiah on 19-2-04.

Significance:

This study is an effort to bridge the lack of research literature in the area of cost effectiveness analyses. The present analysis provides a ground for benchmarking. This study would be helpful for doing more research work and to develop additional models based on economic approach of cost effectiveness analysis. The data of three open universities provides a base of empirical judgment of facts. The main audience of this analysis is interested in knowing the combinations and contrasts of same level programmes in three educational organizations in three different countries.

Figure 1 Enrolment, Examination, Course Presentation, Print, and Total Costs of Departments, at UT.



The function applied for this study was;
Average costs = Fixed cost + Variable costs / N

Unit costs/ Average costs of programme are 134 at UT, 185 at BOU and 28 at AIOU. The unit costs at AIOU are reduced due to high enrolment. The economy of scale is applied and the system shows cost effectiveness.

It is concluded that the economy of scale is applied in case of AIOU so the unit cost is the lowest than the other two universities.

Figure 2

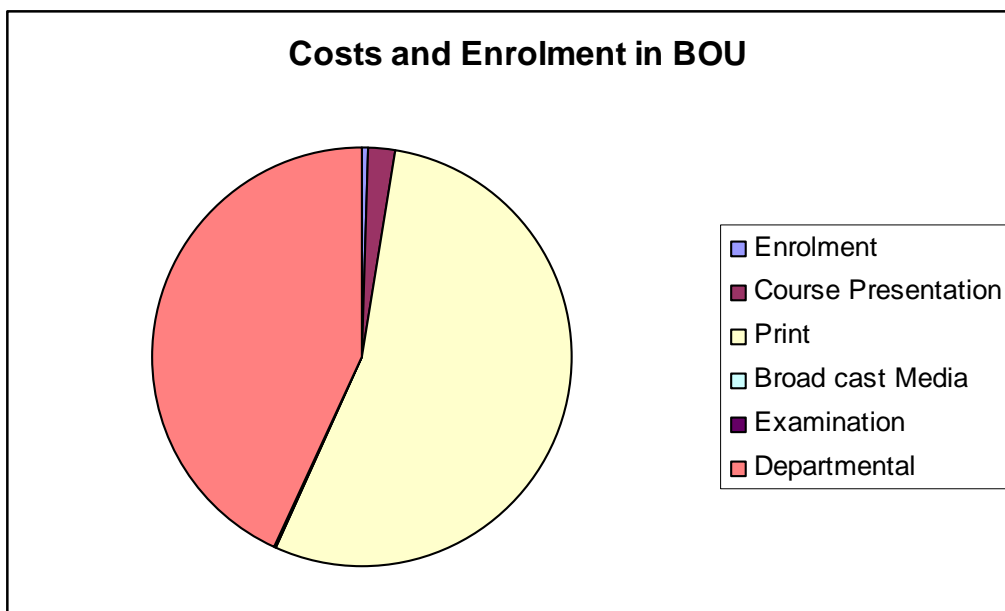
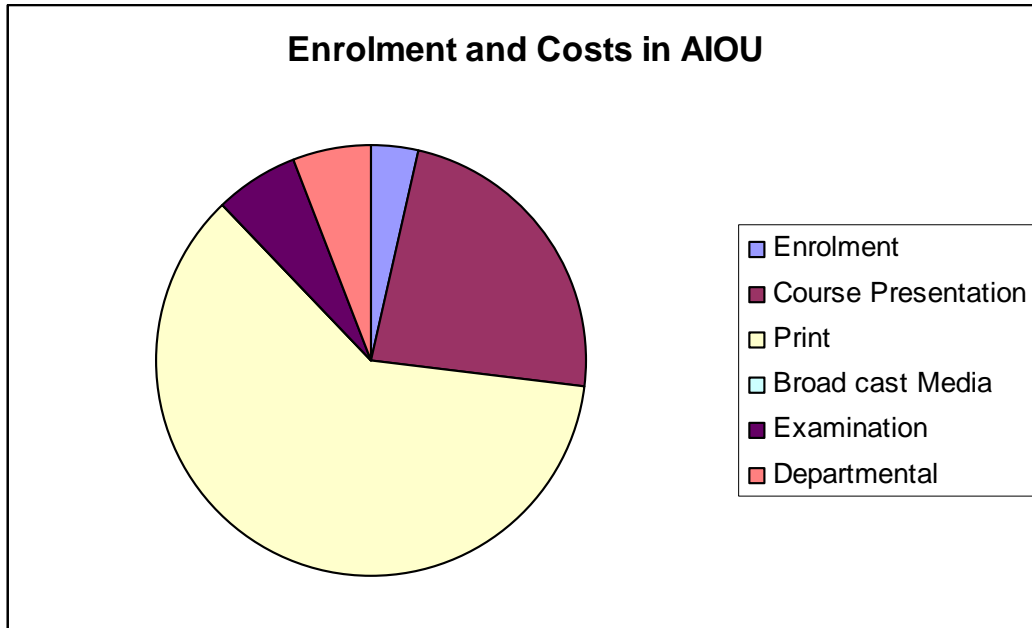


Figure 3.



It is shown in the table 1 that during 11 selected years from 1992 to 2002 the total enrolment has been 35000 at UT, 49969 at BOU and 1067775 at AIOU. Total completion during the same tenure is 27300 at UT, 24452 at BOU and 828179 at AIOU. Total percentage of completion is 78 percent at UT, 49 per cent at BOU and 77.56 at AIOU. The total number of drop outs is 7700 at UT, 25517 at BOU and 239596 at AIOU. The percentage of drop outs is 22 at UT, 51.06 at BOU and 22.44 at AIOU. It is concluded that enrolment is the highest at AIOU and completion is the highest at UT.

Table 1: Difference in Admission and Completion of Last 11 Years.

	Universities		
	<u>UT</u>	<u>BOU</u>	<u>AIOU</u>
Admission	35000	49969	1067775
Completion	27300	24452	828179
Percent completion	78	49	77.56
Percent drop out	22	51.06	22.44

Table 2 is showing the sum of all mean scores of students' satisfaction with the programme.

Table 2: Summation of Mean Scores of UT, BOU and AIOU for Students Satisfaction.

University	Sample	Summation of Mean Score	SD
UT	50	121.36	8.67
BOU	100	108.95	11.94
AIOU	301	111.819	11.37
Mean of Means/ Total	451	112.23	11.51

Summary:

The effective points of programme of UT are: Clear grading criteria, quality of course content, clarity of course objectives, cost of programme, satisfaction with delivery methods at this stage, cooperation in various bodies for student's betterment. The effective points of BOU's programme are rise of social status, increase in income, chances of promotion, the degree has worth as far as social and economic factors are concerned, unit exercises are relevant and quality of course content.. The effective points of AIOU are; Unit exercises are relevant, content appropriate to the level of understanding, the respondents have achieved the professional skills to teach particular subjects.

The weak areas that should be improved at UT are: Less face-to-face element, support services, moderate improvement in television transmissions, print should be combined with all technologies and uncertainty about the monetary benefit after completion of this programme. The neglected areas at BOU are: Un clear grading criteria and lack of fair marking, television transmissions, use of audio video, cd-rom and tele-conferencing with print, the need to improve delivery method, more face to face element, reformulation of course objectives, the cost of programme, support services and lack of cooperation in various bodies for student's welfare.

The improvement is essential in these areas at AIOU : Balance should be in programme cost as compared to formal system, transmissions for this programme, combination of audio and video with print, feedback by tutors, technology, support services, quality of course content after investigations, professional grooming of appointed personal for this programme. More work required for the worth of this degree as compared to formal system.

As far as student's total opportunity cost is concerned UT shows 411 mean score and 256 std. dev., AIOU shows 458 mean score and 274 sd.dev. and BOU has 227 mean score and 70 std. dev.

It is concluded that on one-hand respondents of UT bear more opportunity cost as compared to other two universities and on the other hand they obtain the highest scores for programme effectiveness in terms of satisfaction. Subjects of AIOU are in middle position. Their opportunity cost and satisfaction with programme are in between the group of three universities. Respondents of BOU show the lowest satisfaction and opportunity cost. It is find out that programme at UT is the most effective but it is not cost effective as compared to the other universities. In case of BOU student's satisfaction is the lowest and the opportunity cost is also the lowest. Effectiveness of AIOU programme in terms of student's satisfaction is in between and the opportunity cost is also in between of the other two universities.

READINGS AND BIBLIOGRAPHY

- 1) Akin, Matt, Giles, Rebeca and McCoy, Cindy. (2001). *A Cost Analysis of Distance Education Delivery Models*. Retrieved on 15/1/2002
http://www.Frontiernet.net/~cmccoy/bama/cost_analysis.htm
- 2) Alaluusua, Seppo. (1992). *Cost Analysis and Pricing in Distance Education*. Retrieved on 5 July, 2001 <http://wbweb4.worldbank.org/DistEd/Management/Benefits/fore-04.html>
- 3) Allama Iqbal Open University. (1986). *The Economics and Financing of Education*. Educational Planning and Management. Course Code No. 505, Block 1, 3. 47-48, 51-73
- 4) *Analysing Cost/Benefits for Distance Education Programmes*. The Common Wealth of Learning. Retrieved on 4/7/2001 http://www.col.org/Knowledge/ks_costs.htm
- 5) Ansari, M. M. (1994). *Economics of Distance Education in India*. In Economics of Distance Education. G. Dhanarajan, and others, (eds.) Hong Kong: Open Learning Institute Press. 74, 84, 85, 94
- 6) Ash, Charlotte and Bacsich, Paul. (2000). *A New Cost Analysis Model for Networked Learning*. Paper presented at the European Distance Education Networked (EDEN) Conference, 16-17 March 2000 in Prague. Prague, Czech Republic. Retrieved on 3 March, 2002 <http://www.shu.ac.uk/cnl>
- 7) Ash, Charlotte. (2000). *Towards A New Cost-Aware Evaluation Framework*. School of Computing and Management Sciences, Sheffield UK. Retrieved on 5 July 2001. http://ifets.ieee.org/periodical/vol_4_2000/ash.html
- 8) Awan, M. Daud, Chaudhry, Masooda and Akram, Muhammad. (1990). *Financial Study of AIOU Courses*. Islamabad: Research and Evaluation Cell, Allama Iqbal Open University.
- 9) Bates, A. W. (Tony). (1995). *Technology, Open Learning and Distance Education*. Great Britain: Rutledge. 6-7, 30-31, 37-41, 79
- 10) Bork, Alfred. Knowledge Transfer in International Distance Education. *Distance Education in Developing Countries*. Irvine, Information and Computer Science, University of California. Retrieved on 4/7/2001
<http://www.suffolkcis.org/sabbatical/summary.htm>
- 11) Curran, Chris. (1989). *Developments in Distance Education in Asia, Resource Factors: Recurrent Costs and Conclusions, an Analysis of Five Case Studies*. In UNESCO and International Council for Distance Education, Paris/ Oslo, 23-26. Retrieved on 9 June, 2001 <http://www.wbweb4.worldbank.org/DistEd/Management/Benefits/fore-05.html>.
- 12) Daniel, John Sir. (2005). *Extraordinary Education for Extraordinary People*. Endowment lecture, Netaji Subhas west Bengal Open University. Retrieved on 20 April 2005.
<http://www.col.org./speeches/jD-0504NSWBou.ht>
- 13) Dhanarajan, Gajaraj. (1998). *Delivery of Training Programmes: changing design*. Adelaide Institute of TAFE. UNESCO. UNEVOC International Conference, Vocational Education in the Asia Pacific Region. Adelaide, Australia, 25- 27 March 1998. Retrieved on 1 August 2003. <http://www.sa.edu.au/institute/adelaide/unevoc/keynote/htm>
- 14) Dhanarajan, Gato G. (1999). *The Access to Learning and Asian Universities*. Address to 12th Annual Conference of Asian Association of Open Universities, 4-6 November 1998. The Open University of Hong Kong.
- 15) Government of Pakistan. (2000). *Education for All (2000-2015) Pakistan*. Islamabad: Ministry of Education.
- 16) Heyneman, Stephen P. and White, Saphne Siev. eds. (1986). *Lessons from Bank Experience*. In The Quality of Education and Economic Growth: A Review of Literature. Washington, D. C. The World Bank.

- 17) Hezel, Richard T. (1992). *Cost-Effectiveness for Interactive Distance Education and Telecommunicated Training*. Papers from the Eighth Annual Conference on Distance Teaching and Learning, Madison, Wisconsin, August 5-7, 1992, 75-78. Retrieved on 9 June, 2001 <http://www.globaldistancelearning.com/Management/Benefits/cost-03.html>
- 18) Imfundo. (2002). *The Use of Distance Education*. Department for International Development. 1 Retrieved on 4/20/2002 <http://www.Imfundo.org/Advisory/distance.htm>
- 19) Maria, Rose, Clemena, Salazer, Vollman, Wolfgang and Beck, Harrison. (1997). *Teachers as Lifelong Learners: Case studies of innovative in-service teacher training programmes in the E-9 countries*. UNDP and UNESCO. Retrieved on 19 October, 2002 <http://www.unesco.org/education/e9/teachers.pdf>
- 20) Mitchell, John. (2001). *Cost Benefit and Effectiveness Issues in the Introduction of Educational Technology*. John Mitchell and Associates. Retrieved on 7 August, 2001. <http://www.jma.com.au/openlearncost.htm>
- 21) Perraton, Hilary. (1996). *The Cost Effectiveness of Distance Education for Primary Teacher Training*. A paper prepared for Common Wealth of Learning and Asian Development Bank. Cambridge: International Research Foundation for Open Learning.
- 22) Rizvi, Hasan and Naheed, Nighat. (2005). *Social Studies for Class VII*. Punjab Textbook Board. Government of Punjab. Pakistan. 5, 64
- 23) Rumble, Greville. (1986). *Costing Distance Education*. London: Common Wealth Secretariat Group, Education Division.
- 24) Rumble, Greville.(1988). *A Cost Analysis of Distance Education Delivery Models*. In Akin, Matt, Rebecca Giles and McCoy, Cindy. 246-264, 255-258
- 25) Rumble, Greville. (1997). *A Basic Framework for Analysing Revenue Costs*. In the Costs and Economics of Open and Distance Learning. Greville Rumble. London: Kogan Page. 21-30, Retrieved on 07 May, 2002 <Http://wbweb4.worldbank.org/DistEd/Management/Benefits/fore-01..html>.
- 26) Rumble, Grevilla. (2001). *The Costs and Costing of Networked Learning*. In Jaln 5 (2). Retrieved on 15 June, 2002
- 27) Rumble, Greville. *The Costs of Networked Learning: what have we learnt?* Retrieved on 10 June, 2002 <http://www.shu.ac.uk/flish/rumblep.htm>
- 28) Swanson, Austin D. (1971). *Cost Effectiveness Measures in Education*. In Encyclopedia of Education. Great Britain: Pergoman. 451-458
- 29) The World Bank. (1995). *Pakistan Secondary Education Reform Programme Preparation, Phase 11 Studies Draft Final Report Digest*. Malcolm Mercer. British Council, the World Bank and Ministry of Education, the Government of Pakistan. 15
- 30) The World Bank. (1995). *Priorities and Strategies for Education: Summary*. A World Bank Review. 12
- 31) The World Bank. (1996). *The Full Social Returns to Education: Estimates based on countries economic growth performance*. Alain Mingat and Jee-Peng Tan. <http://www.worldbank.org/education/economicssed/tools/training/econ1/tan-sror.doc>
- 32) UNESCO. (1967). *Fundamentals of Educational Planning: The costing of educational plans*. J. Vaizey and J. D. Chesswas. UNESCO.6
- 33) UNESCO. (1967). *The Relation of Educational Plans to Economic and Social Planning*. R. Poignant. Reprinted. Belgium: UNESCO.12
- 34) UNESCO. (1997). *Cost Effectiveness Analysis: A tool for UNESCO*. 1-33, Retrieved on 4 July, 2001. http://www.unesco.org/bpe/bpe_en/evaluation/tools/outil_09e.htm
- 35) UNESCO. (1997). *Mobilizing for Progress: Second E-9 ministerial review meeting*. Islamabad: UNFPA., UNICEF., UNDP., UNESCO. Retrieved on November, 2002. <http://www.unesco.org/education/e9/mobiliz.pdf>

- 36) UNESCO. (1998). *Population Education Programme Service; Manual, Cost Effectiveness of Training Modalities in Population Education*. Bangkok
- 37) UNESCO. (1998). *World Education Report. Teachers and teaching in a changing world*. UNESCO Publications.
- 38) UNESCO. (2001). *Distance Education in the E-9 Countries: The development and future of distance education programmes in the nine high-population countries. Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, Pakistan*. Charlotte Creed and Hillary Perraton, eds. France: UNESCO. Retrieved on 19 November, 2002
http://www.unesco.org/education/e9/distance_ed.pdf
- 39) UNESCO. (2001). *Teacher Education Through Distance Learning. Technology-Curriculum-Cost-Evaluation. Summary of Case Studies, Brazil, Burkina Faso, Chile, China, India, Mongolia, Nigeria, South Africa (two studies), United Kingdom*. Hillary Perraton, Bernadette Robinson and Charlotte Creed. France: UNESCO. Retrieved on September 2002
- 40) *Webster's New World Student's Dictionary*. (1990). New York: Lexicon Publications, Inc. 195, 277
- 41) World Bank. (2001). *Education: Draft for comments*. Retrieved on 19 November, 2002
<http://www.worldbank.org/poverty/strategies/chapters/education/educ0620.pdf>
- 42) Yenbamrung, Patamaporn. (1994). *The Emerging Electronic University: A study of student cost-effectiveness*. In *Economics of Distance Education*. G. Dhanarajan and others, (eds.) Hong Kong: Open Learning Institute Press. 213