INTERNATIONAL RESEARCHERS

COMPARATIVE EVALUATION OF THE INTERNAL EFFICIENCY OF TEACHER EDUCATION INSTITUTIONS IN PAKISTAN

Dr Shafqat Hussain & Dr Muhammad Saeed

Volume No 1 Issue No.4 December 2012

www.iresearcher.org

ISSN 227-7471

THE INTERNATIONAL RESEARCH JOURNAL "INTERNATIONAL RESEACHERS"

www.iresearcher.org

INTERNATIONAL RESEARCHERS is peer-reviewed, supported by rigorous processes of criterion-referenced article ranking and qualitative commentary, ensuring that only intellectual work of the greatest substance and highest significance is published.

COMPARATIVE EVALUATION OF THE INTERNAL EFFICIENCY OF TEACHER EDUCATION INSTITUTIONS IN PAKISTAN

Shafqat Hussain & Muhammad Saeed

Principal Govt. MC High School , Assistant Professor IER Punjab University

(Pakistan)

shafqatkhanpk2010@hotmail.com, drsaeed1961@hotmial.com

ABSTRACT

The purpose of this paper is to evaluate the internal efficiency of teacher education institutions in Pakistan on the basis of four indicators of internal efficiency: a) availability of physical facilities; b) per student government expenditure in rupees per year; c) pass-out-enrolment ratio; and d) student-teacher ratio. The data for the study were gathered through a checklist and document analysis. The data were analyzed quantitatively using SPSS. The descriptive statistics i.e., frequencies, mean, and standard deviation were used to summarize and analyze the data. One-way-analysis of variance (ANOVA) was employed to compare the GCETs (Government Colleges for Elementary Teachers) of low, medium, and high enrolment and the t-test was used to compare the male and female GCETs on the basis of selected indicators of internal efficiency. Results revealed that there was no significant difference ($p > 0.05$) among the GCETs included in the stratum of low, medium, and high enrolment with respect to all identified indicators of internal efficiency; however institutions with medium and high enrolment perform better than those with low enrolment. The null hypotheses were accepted ($p > 0.05$) for all the indicators of internal efficiency except student-teacher ratio ($p < 0.05$) which showed that students-teacher ratio was significantly higher in male institution than female. The output of female GCETs was not quite encouraging when compared with male GCETs in terms of pass-out ratio, government annual expenditure, physical facilities, and student-teacher ratio.

Keywords: Internal efficiency, enrolment, cost, physical facilities

1. INTRODUCTION

Education is essential to satisfy the cultural, ideological, social, and economic needs of society. Formal and non-formal institutions of general education and teacher education carry out this task with the help of teachers. Without realizing the pivotal role of teachers' training, it is not possible to bring about desired improvements in the entire system of education. The significance of the teachers' training is emphasized by the different authors. As a result of better training, both trainer and trainee learn more. Oyitso (1997) states "training is conceived as an organized procedure by which people learn and acquire knowledge and skills for a definite purpose". Nwanchukwu (1990) perceives training as the process of increasing human efficiency through which people are offered the opportunity to acquire new skills and current knowledge required in carrying out various specialized tasks in their place of work.

The core objectives outlined in the National Education Policy (1998) in relation to the development of teacher education in Pakistan are to: (a) increase the effectiveness of the system by institutionalizing in-service training of teachers, teacher trainers, and educational administrators; (b) upgrade the quality of pre-service teacher training programmes, by introducing parallel programmes of longer duration at post-secondary and post-degree levels; (c) make the teaching profession attractive to the young talented graduates by institutionalizing a package of incentives; and (d) develop a viable framework for policy, planning and development of teacher training programmes, both in-service and pre-service.

Research (World Teachers' Day Forum, 2005) shows that the teacher training institutions across Pakistan in the government domain are under-utilized, neglected with complex and inconsistent structures managed as hierarchical bureaucracies across provincial and district levels. The quality of teacher education institutions remains highly uneven across Pakistan; demand of quality learning must be assured as it is a major national challenge. Improving teacher education is among the most prominent reforms suggested for education today (Ginsberg & Rhodes, 2003) and to ensure the quality of pre-service teacher education programmes should be of high concern. This is possible through proper monitoring and evaluation. Evaluation of pre-service and in-service teacher education programmes has been a major concern of much of the literature on teacher education in these days (Newton & Braithwaite, 1987). There are diverse criteria for assessing the teacher education programmes. Ishler, Johnson$_1$, and Johnson$_2$ (1998) pointed out three measures that may be used to evaluate teacher education programmes are: whether graduates (a) learned what was being taught; (b) transferred what they learned to their job situations; and (c) maintained their use of the new procedures for years after the training ended.

Rapid changes in the society and sustain quality of educational products have called for efficient supervision of schools (2012). The model of internal efficient educational system is the special interest to educational planners because the more internally efficient educational systems require less fund to run system and fulfill its objectives (Ekundayo, 2007; Adu, 2010). Lawton (1996) found that the acquisition of resources, especially teaching staff for programmes is another area where efficiency is critical. The teachers' job performance is another variable that could determine teacher worth in a school system. It refers to the actions of the teacher in performing definite jobs in the school. It is the totality of the input of the teacher towards the accomplishment of educational objectives (Ajayi, 2005; Olorunsola, 2010). The most efficient solution is to purchase the right balance of resources - facilities, teachers, administrators, support and maintenance staff books and media, etc. -- at the best prices. Akinsolu (2003) stressed the importance of provision and management of physical facilities in the organization of educational system. The efficiency relates the outcome of a process to its input. A system is said to be efficient if a maximum output is obtained from given input, or if a given output is obtained with minimum input. Efficiency has thus to do with the ratio between output and input. The analysis of efficiency thus deals with a comparison of costs and benefits. The output may either be measured as a goal within the education and training system, such as achievement scores or completion rates, or as a goal outside the education and training system, such as employment probabilities or earning returns on the labour market (Woflmann & Schutz, 2006, p.2).

To evaluate the efficiency of teacher education institutions, it is necessary to highlight the concept of the efficient educational institution. The efficiency of institution depends upon the optimal use of available inputs and producing maximum outputs. Zaki (1989, p.163) described the concept of efficiency in the context of educational institution as "a university is run efficiently if a given quantity of outputs (graduates) is obtained with a minimum of inputs (resources) or, alternatively, if a given quantity of inputs (resources) yields maximum outputs (graduates)". Tsang (2002, p.2) explained this concept as "internal efficiency relates educational outputs to educational inputs, while external efficiency relates educational outcomes to educational inputs". Aghenta (2000) argued that in order to determine the internal efficiency of the educational system, one has to determine the inputs such as academic and supporting staff, funds, equipment, physical facilities and other facilities in relation to the output produced with such educational inputs.

In order to measure the efficiency of any education system, the inputs and the process, have to be related to the effects, which are based upon the outputs and the outcomes. The evaluation of the efficiency any institution can be viewed as consisting of four main components: (a) the real resources used in education, e.g. the characteristics of learners, educators, curricula, facilities and equipment, and financial resources; (b) the interactions between learners and inputs, between different inputs themselves, and between teaching/learning processes; (c) the direct and more immediate results or effects of education, e.g., learner's completion/certification; and (d) the ultimate effects of education, e.g. increased earnings, employment, contribution to productivity and other non-monetary outcomes (European Research Associates, 2006).

Efficiency of any system can be measured through a set of performance indicators. There are a number of performance indicators of an education system. These may include indicators for expenditure, for spread of facilities, for enrolment, literacy levels, gender balance and many others. Internal efficiency has several components. Salami and Hauptman (2006) summarize the concept of efficiency in three dimensions: (a) the need to moderate costs to conserve resources; (b) maintain or increase the rate at which students complete their programs and receive degrees; and (c) these and other measures of internal efficiency ultimately are linked to notions of sustainability - policies will prove unsuccessful if they are not financially sustainable in the longer term. The concept of efficiency can be clearer after shedding light on the different types and approaches of measuring educational efficiency from the related review literature.

Educational efficiency is not confined to economic concerns only, since educational outputs and outcomes also pertain to social and political dimensions of national development. It can be distinguished into internal and external efficiency. Education economists define internal efficiency as comprising "the amount of learning achieved during school age attendance, compared to the resources provided,... the percentage of entering students who complete the course is often used as (its) measure" (Abagi & Odipo, 1997). Such type of efficiency refers to the use of resources in such a way as to maximize the educational output(s) possible from their use. According to the report of Asian Development Bank (Teacher Training Projects in Pakistan, 2002, p.4) in most teacher training institutions in Pakistan, "females have a higher rate of internal efficiency due to higher retention rates". This type of efficiency shows that enrolment is a significant factor for determining the internal efficiency of any institutions.

In the above context of educational efficiency, Khan and Mace (2006) asserted that internal efficiency is concerned with efficiency within the education system. Zaki (1989, p.165) elucidates this concept as; "the internally efficient institution is one which turns out graduates without wasting any student-year or without dropouts and repeaters". Ndaruhutse (2005) defined three internal efficiency measures: (a) student efficiency measures include the three primary measures of flow efficiency within a student cohort i.e., promotion rates, repetition rates, and dropout rates; (b) staff efficiency measures include student-staff ratio and give an indication of how well one type of input (staff) is used in the education process; and (c) cost efficiency measures uses financial resources as another key input, some of which are used to pay staff. A useful overall cost efficiency measure is the unit cost per student.

The concept of internal efficiency in education is applicable only to those educational processes which follow the age/grade-pattern of conventional formal schooling. The research studies revealed that financial resource utilization had no significant relationship on students' repetition, dropout, fail-out and graduation rate (Bassey, 2000). The evaluation of the efficiency of any institution can be done by identifying indicators of efficiency. Kiveu and Mayio (2009) used dropout rates, repetition rates, and graduation rates as indicators of internal efficiency. Abdessalem (2009) pointed out cost on student and student-teacher ratio as indicators of internal efficiency. Abagi and Odipo (1997, p.9) describe the indicators of efficiency as follows: (a) resource allocation to both various levels of education and different inputs such as textbooks and fees; (b) pupil-teacher ratios and teachers' inputs in schools; (c) classroom management and teaching-learning contact hours; (d) utilization of school physical facilities, such as classrooms, and desks; (e) transparency and accountability on school management and resource utilization; and (f) performance in national examinations. The teacher education institutions are the user of national resources i.e., physical, financial, and human resources. There is need to analyse the use of inputs in terms of internal efficiency of these institutions. The study is designed to find out the comparative evaluation of internal efficiency of GCETs considering the selected inputs and outputs.

The performance of any teacher institution may be assess through indicators of internal efficiency i.e., pass-out-enrolment ratio, per student expenditure, student-teacher ratios and students' perception toward the proper use of physical and academic inputs of their institutions. The GCETs perform the role of pre-service and in-service teacher education. Since 2002, these institutions have been launching BEd and MEd programmes to produce teachers for education system in Punjab. Hence, there is need to evaluate the internal efficiency of these institutions. This study is designed to assess and compare internal efficiency of these institutions on the basis of four indicators: (a) availability of physical facilities (APF); (b) per student government expenditure (PSGE); (c) pass-out–enrolment ratio (PER); and (d) student-teacher ratio (STR) which may help to improve the teacher education programmes and other methodological issues. It may also be significant for the teacher education institutions to improve their internal efficiency. It underpins the following research questions and hypotheses.

RESEARCH QUESTIONS

1. What are the differences across the various GCETs with respect to identified indicators of internal efficiency?
2. Which GCETs (low, medium, and high enrolment) are better with respect to the identified indicators of internal efficiency?
3. Whether male or female GCETs are better with respect to the identified indicators of internal efficiency?
4. Which indicators are good predictors of internal efficiency in GCETs?

NULL HYPOTHESES

1. There is no significant difference in the internal efficiency of low, medium, and high enrolment in GCETs on the basis of identified indicators of internal efficiency
2. There is no significant difference in the internal efficiency of male and female GCETs on the basis of identified indicators of internal efficiency.

2. METHODOLOGY

SAMPLE DESIGN

The 33 GCETs of Punjab were different on the basis of the enrolment. Therefore instead of studying them in bulk, a sampling frame was created and three strata were developed on the basis of the students' enrolment. The GCETs of enrolment less than 100 were included in the stratum of low enrolment, between 100 and 200 in stratum of medium enrolment, and more than 200 in stratum of high enrolment. Six out of 33 GCETs of target population were included in stratum of low enrolment, 18 GCETs in medium enrolment, and 9 GCETs in high enrolment. The accessible population was selected from three strata by using proportional allocation technique of stratified random sampling. Two GCETs in the stratum of low enrolment, six GCETs in medium enrolment, and three GCETs in high enrolment were selected from target population (See appendix A).

INSTRUMENTATION AND DATA COLLECTION

Data were collected from two research instruments. First, a checklist was developed to identify the availability or non-availability of the required physical facilities, i.e. building, classrooms, staffroom, main hall, library, science laboratory, resource/audio-visual aid room, hostel, residential accommodations for staff, and allied facilities in the GCETs. Second, for official document analysis, a proforma was developed to collect the information i.e. enrolment of students, number of graduates, expenditure, and vacancy position of supporting and academic staff of GCETs. The proforma and checklist were discussed with five experts having more than ten year experience in the field of teacher education. The instruments were improved in the light of valuable comments of the experts for validation purposes.

The checklist was filled in by the principal researcher during his personal visits to the sampled GCETs. The data collected were used to compare the availability of physical facilities of GCETs. For each item of physical facilities, weights were assigned as, one for '*yes'* and zero for '*no'* to convert the information into scores for further comparisons. The official documents of GCETs were examined personally in order to collect requisite information. The requisite information was also collected from the concerned offices of UE, Lahore partly through correspondence and partly by personal visit.

The descriptive statistics i.e. frequencies, mean, and standard deviation were used to summarize and analyze the data. The ANOVA was used to compare the GCETs of low, medium, and high enrolment on the basis of selected indicators of internal efficiency. According to Gall et al. (1996), the ANOVA indicates whether any of the groups are significantly different from each other in a dependent variable. The t-test was used to compare the male and female GCETs on the basis of selected indicators of internal efficiency.

3. DISCUSSION OF RESULTS

This section deals with the interpretation and discussion of results. In the first part, evaluate the internal efficiency of individual sampled GCET in Punjab and second part compares the GCETs of low, medium, and high enrolment on basis of identified indicators of internal efficiency. The third part deals with overall comparison of the GCETs of low, medium, and high enrolment and the fourth part deals with comparison of male and female GCETs on basis of identified indicators of internal efficiency respectively. The institutions mentioned are pseudonyms so as to observe research ethics.

INTERNAL EFFICIENCY OF INDIVIDUAL SAMPLED GCETS

The internal efficiency of individual sampled GCETs were compared on the basis of four indicators i.e. availability of physical facilities, per student government expenditure in rupees per year, pass-out-enrolment ratio, and student-teacher ratio (Table 1). The availability of physical facilities in GCETs of stratum I and III is more than GCETs of stratum II and overall. The comparisons show greater variation with regard to per student government expenditure in rupees per year among GCETs in different stratums. At least one GCET from each stratum show towering cost per student than overall cost. According to a study conducted by the AED (2006), the unit cost of teaching a PTC/CT candidate in selected teacher training institutions for 2003-04 ranged between Rs. 15,392 to Rs. 119,107 which supports the results of this study. The overall unit cost per candidates was Rs. 55287 which contradicts the unit cost (35643) of this study.

The pass-out-enrolment ratio shows that wastage of resources in GCETs of stratum I and III is more (except $GCET_{w2}$) than the GCETs lies in stratum II. The pass-out-enrolment ratio comparisons show that GCETs in stratum II are more efficient than GCETs in other stratum. The student-teacher ratio depicts that all the GCETs have six to 32 students per teacher. The overall ratio was 15:1 which is somewhat ideal. The student-teacher ratio results contradict with governmental (29:1) and nongovernmental (44:1) reports of Pakistan (UNESCO, 2006).

The individual indicator and collective indicators of internal efficiency shows that these GCETs are not internally efficient. The ranking of GCETs in stratum II on individual indicator and collective indicators of internal efficiency shows that male institutions are efficient but female institutions are not. Both GCETs in stratum I are not efficient. The first two GCETs in stratum II are inefficient but last four are efficient. The GCETs in stratum III on indicators of internal efficiency shows two institutions in this stratum are inefficient and one is efficient. The efficient institution in stratum II and III has better enrolment other than all the GCETs in the study. The overall comparisons of male and female institutions show that the female institutions are less efficient than male institutions.

COMPARISON OF THE GCETS OF LOW, MEDIUM, AND HIGH ENROLMENT

The comparison of mean scores of GCETs of low, medium, and high enrolment with respect to the indicators of internal efficiency, which can be seen in Table 2. The comparison of mean scores shows that the GCETs of medium enrolment were better than GCETs of low and high enrolment with respect to the indicator i.e., the highest pass-out-enrolment ratio, and the least cost in terms of physical facilities. The GCETs of high enrolment were better than GCETs of low and medium enrolment with respect to the indicators i.e., the least per student government expenditure and the highest student-teacher ratio. The GCETs of low enrolment were not better than GCETs of medium and high enrolment with respect to any identified indicators of internal efficiency.

The comparison of GCETs of low, medium, and high enrolment on the basis of selected indicators of internal efficiency by using ANOVA can be seen in Table 3. The null hypothesis (H_{o1}) to be tested was 'there is no significant difference in the internal efficiency of low, medium, and high enrolment in GCETs on the basis of identified indicators of internal efficiency'. The ANOVA test was applied to investigate the significant differences in each indicator of internal efficiency. The null hypotheses were accepted for all the four indicators of internal efficiency, i.e. pass out enrolment ratio (F (2, 8) = 1.397, P= .24), per student expenditure (F (2, 8) = 1.397, P= .81), student teacher ratio (F (2, 8) = 1.397, P= .16) and availability of physical facilities (F (2, 8) = 1.397, P= .16). It means that there was no significant difference among the GCETs included in the stratum of low, medium, and high enrolment with respect to any identified indicator of internal efficiency.

COMPARISON OF MALE AND FEMALE GCETS

The situation was relatively better in female GCETs in comparison to their male partner institutions as regard the pass-out ratio, which can be seen in Table 4. Per-students expenditure was relatively higher in female institutions than male institutions, but it is surprising to note that physical facilities were not found conducive to teaching learning environment. The student-teacher ratio was about ideal in male GCETs (i.e. 20:1) while in female GCETs it was almost unrealistic (i.e. 8:1) in a developing country like Pakistan. It seems also surprising that there is an increasing trend of female enrolment in co-education teachers' education institutions.

Table 4 further explores that the null hypothesis (H_{o2}) 'there is no significant difference between male and female GCETs on the basis of identified indicators of internal efficiency' was accepted with regard to the indicators of internal efficiency, i.e. pass out enrolment ratio (t(33) = -1.36, p = .21), per students expenditure (t(33) = -.62, p = .55), availability of physical facilities (t(33) = .74, p = .48) but rejected with regard to indicator student-teacher ratio (t(33) = 2.68, p = .025) which shows that students-teacher ratio was significantly higher in male institution than female, when independent samples t-test was applied to investigate the significant differences between male and female GCETs across the four indicators, i.e. pass-out enrolment ration, per-student annual government expenditure, student-teacher ratio, and availability of physical facilities.

4. CONCLUSIONS AND RECOMMENDATIONS

i. The overall comparison of institutions lie in the stratum of low, medium, and high enrolment shows that most efficient institutions lie in medium and high enrolment stratum. Therefore it is recommended that institutions with low student enrolment should launch enrolment campaigns so as to ensure compatibility between annual expenditure of the government and students' enrolment and their pass-out ratio.

ii. Although gender-wise no significant difference is seen across the four identified indicators, except student-teacher ratio. It is recommended that either female GCETs should increase enrolment or female staff should be transferred to corresponding positions in school cadre so as to ensure the input and output of these institutions. For instance, a country like Pakistan can bear the low student-teacher ratio of 8:1.

iii. The aspect of physical facilities needs to be improved as it is closely associated with the conducive teaching-learning environment in the institutions. Instead of opening new institutions, there is need to improve the infra-structure and capacity building of the teaching staff in the existing teacher training institutions. Farooq (1993) findings also support the finding of this study that convincing attention was not paid to the qualifications of the teaching staff of these colleges.

iv. There is need to identify more indicators of internal efficiency of teacher education institutions and a larger study is designed at provincial and national level.

References

Abagi, O., & Odipo, G. (1997). *Efficiency of primary education in Kenya: Situational analysis and implications for educational reform*. Discussion Paper No. DP 004/97. Institute of Policy Analysis and Research. Ambank House, University Way, Nairobi: Kenya.

Abdessalem, T. (2009). *Financing Higher Education in Tunisia. Regional conference on financing higher education in Arab countries.* Amman, June 17-18, 2009 at Economic Research Forum.

Academy for Educational Development (2006). *Performance gap analysis and training needs assessment of teacher training institutions.* Pakistan Teacher Education and Professional Development Programme.

Adu, E. T. (2010). School-based variables and internal efficiency of colleges of education in Nigeria. Unpublished PhD Thesis, University of Ado Ekiti, Nigeria.125-147.

Aghenta, J. A. (2000). Educational planning in the 21st century in J.O. Fadipe, & E.E. Oluchukwu (ed) *Educational planning and administration in Nigeria in the 21st Century.* Ondo: National Institute for Educational Planning and Administration 2 -6.

Ajayi, E. M. (2005). Students' performance in integrated science as a predictor of achievement in senior secondary school science subjects in Ekiti State, Nigeria. Unpublished MEd Thesis, University of Ado Ekiti, Nigeria, 51-56.

Akinsolu, A. O. (2003). Provision and management of facilities for primary education in Nigeria. Paper presented at the conference of Nigeria Association of Educational Administration and planning (NAEAP). University of Ibadan. Oct 29th – 31.

Asian Development Bank (2002). *Project completion repot on the teacher training projects in Pakistan (Loan 1210-PAK [SF]).*

Bassey, U. (2000). Strategic financial management process in tertiary institutions: A flow model. Afr. J. Dev. Stud., 2(1&2): 197-201.

Ekundayo, H. T. (2007). A Comparative Analysis of Private Cost of Higher Education in Ekiti State, Nigeria. *Journal of Educational Foundations and Managements (JEFAM)*, University of Ado Ekiti, Nigeria 4 (1) 12-18.

European Research Associates (2006). *Key Education indicators on social inclusion and efficiency*. Luxembourg: Final report, Contract No. 2005-4751/001-001 EDU-ETU.

Farooq, R. A. (1993). *Education system in Pakistan – issues and problems*. Islamabad: Asia society for Promotion of Innovation and Reforms in Education.

Gall, M., Borg, W., & Gall, J. (1996). *Educational research: An introduction* (6th ed.). White Plains, NY: Longman Publishers USA.

Ginsberg, R., & Rhodes, L. K. (2003). University faculty in partner schools. *Journal of Teacher Education. 54(2)*, 150-162.

Government of Pakistan. (2006). *National Education Policy Review Process.* Islamabad: Ministry of Education.

Idara-e-Taleem-o-Aagahi. (2005). *Report on World Teachers' Day Forum 2005*

Ishler, A. L., Johnson, R. T., & Johnson, D. W. (1998). Long-term effectiveness of a state-wide staff development program on cooperative learning. *Teaching and Teacher Education. 14(3),* 273-281.

Khan, H., & Mace, J. (2006). The contribution of the private sector to higher education in Pakistan with particular reference to efficiency and equity. *Bulletin of Education & Research. 28(2)*, 17-42.

Kiveu, N. M. & Mayio, J. (2009). The impact of cost sharing on internal efficiency of public secondary schools in Ndivisi division, Bungoma district Kenya. *Educational Research and Review, 4(5)*, 272-284. Retrieved from http://www.academicjournals.org/ERR

Lawton, S. B. (1996). *The economics of choice: Assessing the efficiency and effectiveness of alternative approaches to choice in education.* Ontario Institute for Studies in Education of the University of Toronto (OISE/UT).

Ndaruhutse, S. (2005). *Efficient and effective funding mechanisms for achieving education mdgs: linking inputs to outcomes to achieve sustainable results*. Paper for UKFIET Oxford International Conference on Education and Development (OxCon).

Newton, E. H., & Brathwaite, W. E. (1987). Priorities and program effectiveness in teacher education: A study of the perceptions of teachers in training and their tutors. *Teaching and Teacher education. 3(3)*, 193-204.

Nwanchukwu, O. F. (1990). *Manpower development in Nigeria through in-service training*. Unpublished MEd Thesis, University of Lagos.

Olasunkanmi, A. A., & Mabel, O. O. (2012). An Input-Output Analysis of Public and Private Secondary Schools in Lagos, Nigeria. *International Journal of Humanities and Social Science Vol. 2 No. 18.*

Olorunsola, E. O. (2010). Job satisfaction and performance of administrative staff in South West Nigeria universities. Unpublished Ph.D Thesis, University of Ado Ekiti, Nigeria, 122-128.

Oyitso, M. O. (1997). The Perceived Impact of Manpower Training on Trainees' Job Performance and standard of living in Nigeria's Banking Industry, *CARESON Journal of Research and Development*, *1 (1)*, 94-106.

Salami, J., & Hauptman, A. M. (2006). *Innovations in Tertiary Education Financing: A Comparative Evaluation of Allocation Mechanisms.* Education Working Paper Series by World Bank, Washington D.C

Tsang, M. C. (2002). *Economic analysis of educational development in developing nations.* In Guthrie, J. (ed.) Encyclopedia of Education, 2nd edition. Macmillan.

UNESCO. (2006). Situation analysis of teacher education in Pakistan: Towards a strategic framework for teacher education and professional development. Islamabad: UNESCO.

Woflmann, L., & Schutz, G. (2006). *Efficiency and equity in European education and training systems.* Analytical Report for the European Commission prepared by the European Expert Network on Economics of Education (EENEE).

Zaki, W. M. (1989). *Education planning skills*. Islamabad: National Book Foundation.

Zaki, W. M. (1989). *Evaluation of educational plans and projects*. Islamabad: National Book Foundation.

Table 1. Overall Comparison of GCETs on basis of Identified Indicators of Internal efficiency

	GCET	Comparisons of GCETs on the basis of indicators of internal efficiency			
		Availability of physical facilities	Per student Govt. expenditure in Rs.	Pass-out-Enrolment Ratio	Student-Teacher Ratio
Stratum I (Low Enrolment)	$GCET_1$	76	106057	100:74	29:1
	$GCETw_2$	75	53491	100:90	6:1
Stratum II (Medium Enrolment)	$GCETw_3$	59	44607	100:88	11:1
	$GCETw_4$	52	59637	100:92	8:1
	$GCET_5$	60	28803	100:92	17:1
	$GCET_6$	57	35496	100:89	15:1
	$GCET_7$	59	35201	100:83	20:1
	$GCET_8$	71	28676	100:92	22:1
Stratum III (High Enrolment)	$GCET_9$	76	28660	100:81	19:1
	$GCET_{10}$	73	59255	100:85	9:1
	$GCET_{11}$	69	13382	100:84	32:1
Overall		66	35643	100:86	15:1

Note. Subscript' w' showing female GCETs

Table 2. Comparison of the GCETs of Low, Medium, and High Enrolment

Indicators of Internal Efficiency	GCETs included in Stratum of – Enrolment		
	Low	Medium	High
	Mean	Mean	Mean
Pass-out-enrolment ratio	84:100	90:100	83:100
Per students government expenditure in rupees per year	70410	38713	34659
Student-teacher ratio	15:1	16:1	20:1
Mean score of the availability of Physical facilities	70	59.8	72.67

Table 3. Comparison of the GCETs of Low, Medium, and High Enrolment on the Basis of Selected Indicators of Internal Efficiency Using ANOVA

Indicators of Efficiency	Groups	Sum of Squares	d f	Mean Square	F	Sig.
Availability of Physical facilities	Between	266.170	2	133.085	2.31	0.162
	Within	461.467	8	57.683		
	Total	727.636	10			
Pass-out-enrolment ratio	Between	96.679	2	48.339	1.74	0.235
	Within	221.867	8	27.733		
	Total	318.545	10			
Student-teacher ratio	Between	37.042	2	18.521	.219	0.808
	Within	675.867	8	84.483		
	Total	712.909	10			
Per student government expenditure in rupees per year	Between	2438162237	2	1219081118	2.34	0.159
	Within	4169081482	8	521135185		
	Total	6607243719	10			

Note. p*<0.05

Table 4. Comparison of the Male and Female GCETs on the Basis of Selected Indicators of Internal Efficiency Using T-test

Indicators of Internal Efficiency	Male		Female		t-value	P
	Mean	SD	Mean	SD		
Pass-out-enrolment ratio	85:100	6	90:100	2	-1.364	.206
Per students government expenditure in rupees per year	43202	29745	54385	8393	-.623	.549
Student-teacher ratio	20:1	7.41	8:1	2.52	2.680	.025*
Mean score of the availability of Physical facilities	67.63	7.63	62	11.8	0.74	.478

Note. p*<0.05, d f = 9

APPENDIX A

SELECTION OF GCETs FOR THE ACCESSIBLE POPULATION FROM EACH STRATUM

Stratum of Low Enrolment (less than 100)	Stratum of Medium Enrolment (between 100 and 200)	Stratum of High Enrolment (above 200)
GCET(M), Kamalia	GCET(M), Samanabad, Faisalabad	GCET(M), Chungi # 6, Multan
GCET (W), Sector H-9, Islamabad	GCET (W), Model Town-A, Bahawalpur	GCET(M), Kot Lakhpat, Lahore
	GCET(M), Sargodha	GCET(M), Ghakhar
	GCET(M), Mianwali	
	GCET(M), Barkat Park, Lalamusa	
	GCET (W), Block Z, D G Khan	