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EVALUATION

Links to Learning: Education Support to Pakistan (ED-LINKS)

Evaluation Report

September 2012

This report was made possible with support from the American people, through the U.S. Agency for International Development (USAID) by the ED-LINKS Evaluation Team, JBS/Aguirre International.

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- Officials met and interviewed during visits by evaluation team members in Islamabad and Karachi, including heads of departments at the federal, provincial and agency levels, agency directors, and members of educational institutions at the federal, provincial, agency, district, and college level.
- District-level education managers and managerial assistants, who in many cases were involved in more than one ED-LINKS program. We particularly thank those managers who so patiently shared their knowledge and experiences during in-depth interviews.
- School headmasters, principals, teachers, teacher trainers, and other educators and students who graciously gave their time to fill out surveys and participate in, at-times, lengthy interviews and group discussions.
- Management and staff associated with the ED-LINKS program for their generous sharing of time and insights, particularly the Chief of Party, the Deputy Chief of Party, the Senior Technical Advisor M & E, and the Deputy Regional Director.
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PROJECT SUMMARY

Table 1: ED-LINKS Project Summary

USAID Strategic Objective addressed	The project contributes to USAID's Strategic Objective 3: Improved quality and sustainability of teacher education and student performance in targeted geographical areas in Pakistan
Implementing partners	American Institutes of Research (AIR) with Aga Khan Foundation (AKF), Children's Global Network, Pakistan (CGN), Indus Resource Center (IRC), KZO Networks, Management Systems International, Inc. (MSI), Society for Community Support for Primary Education in Balochistan (SCSPEB), Teacher Resource Centre (TRC)
USAID Cooperative Agreement Number	No. 391-A-00-08-01100-00
Project dates	October 20, 2007, to June 30, 2012
Project budget	$89,999,917
Project location	Pakistan (Sindh, Balochistan, ICT and FATA)

ACRONYMS

ADO (ADOE)	Assistant District Officer (of Education)
AEPAM	Academy of Educational Planning and Management
AEO	Assistant Education Officer
AIR	American Institutes for Research
AKU-EB	Aga Khan University Examination Board
AJK	Azad Jammu and Kashmir
AusAid	Australian Agency for International Development
BA	Bachelor of Arts
BBA	Bachelor of Business Administration
BoC	Bureau of Curriculum
BS	Bachelor of Science
CTO	Cognizant Technical Officer
CIDA	Canadian International Development Agency
DAI	Degree Awarding Institutions
DDEO	Deputy District Education Officer
DEO	District Education Officer
DOE	District Officer Education (Secondary)
DO	District Officer
DfID	Department for International Development (UK)
ED-LINKS	Links to Learning: Education Support to Pakistan
EFA	Education for All
ELM	Educational Leadership and Management
EMIS	Education Management Information System
EPPU	Education Policy and Planning Unit
ESRA	Education Sector Reform Assistance
EST	Elementary School Teacher
FA/FSC	Intermediate Certificate
FAO	Financial Aid Officer
FANA	Federally Administered Northern Areas
FATA	Federally Administered Tribal Area
GD	Group Discussion
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GoP	Government of Pakistan
HEC	Higher Education Commission
HEI	Higher Education Institutions
HSC	Higher Secondary (School) Certificate
IBRD	International Bank for Reconstruction and Development (World Bank)
ICT	Islamabad Capital Territory
ID	Identification
IDP	Internally Displaced Person
ILO	International Labor Organization
IMEC	Independent Monitoring & Evaluation Contract
IR	Intermediate Results
KII	Key Informant Interview
KPK	Khyber Pakhtunkhwa Province (formerly NWFP)
LEAPS	Learning and Educational Achievements in Punjab Schools
MBA	Master of Business Administration
MDG	Millennium Development Goals

MA	Master of Education
Med	Master of Arts
MS	Master of Science
MTDF	Medium Term Development Framework 2011-15
NCATE	National Council for Accreditation of Teacher Education
NEP	National Education Policy 2001-2015
NER	Net Enrollment Ratio
NPA	National Plan of Action
NWFP	North-West Frontier Province (currently KPK)
PC-1	PC-1 form, GoP, Planning Commission. Proforma for Development Projects
PIL	Project Implementation Letter (USAID)
PITE	Provincial Institute for Teacher Education
PKR	Pakistani Rupee
PMP	Performance Management Plan
PPIU	Policy, Planning and Implementation Unit
Pre-Step	Pre-Service Teacher Education
PRSP	Pakistan's Poverty Reduction Strategy Paper
PSLM	Pakistan Social and Living Standards Measurement
SEP	Sindh Education Program
SO	Strategic Objective
SOP	Standard Operating Procedure
SOW	Scope of Work
SSC	Secondary School Certificate
STB	Sindh Textbook Board
TRC	Teacher Resource Centre
UNESCO	United Nations Education, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
USDOS	United States Department of State
VC	Vice Chancellor of a University (equivalent of a President in US university)
WB	World Bank

GLOSSARY

Formative Assessment	Formative assessment is part of the instructional process. When incorporated into classroom practice, it provides the information needed to adjust teaching and learning while they are happening. In this sense, formative assessment informs both teachers and students about student understanding at a point when timely adjustments can be made. These adjustments help to ensure students achieve targeted standards-based learning goals within a set time frame.
GER: Gross Enrollment Ratio	The 'Total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year.'[1]
Higher Education	In Pakistan, higher education refers to education above grade 12, which generally corresponds to the age bracket of 17 to 23 years[2].
Markaz	Lowest administrative level within a district
NDV: Net Discounted Value	The value of future cash inflows minus the present value of the investment and any associated future cash outflows
NER: Net Enrollment Ratio	The primary Net Enrolment Rate is the number of pupils of official primary school age 8 enrolled in primary education, as a percentage of the total population in that age group. The NER is an indicator of the level of accessibility of education for school-age children.
Opportunity cost	The cost of any activity measured in terms of the value of the next best alternative forgone (that is not chosen). It is the sacrifice related to the second best choice available to someone, or group, who has picked among several mutually exclusive choices. The opportunity cost is also the "cost" (as a lost benefit) of the forgone products after making a choice
ROI: Return on Investment	The calculation of how profitable an investment is or can be. It is a simpler form of cost-benefit analysis when both costs (i.e., investment) and benefits (financial returns) are measured in monetary terms. It is defined as ROI=Net Benefits/Net Costs x 100%
Summative Assessment	Summative assessments are given periodically to determine at a particular point in time what students know and do not know. They often take the form of standardized tests and are an important part of classroom programs.
Tehsil	Second-lowest tier of local government within a district (zila/zilah)
Zila/Zilah	District

[1] UNESCO, available at http://www.uis.unesco.org/Library/Documents/eiguide09-en.pdf, page 9
[2] World Bank, Country Summary of Higher Education, available at: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1121703274255/1439264-1193249163062/Pakistan_countrySummary.pdf

EXECUTIVE SUMMARY

ED-LINKS brought great promise to the education sector. Although falling short of its most ambitious goals to establish broad, enduring links among governance reform, teacher performance, and student learning, ED-LINKS presented a well-conceived and innovative design for education change in Pakistan and laid out a bold vision for establishing those links. This evaluation shows that ED-LINKS demonstrated some important ways forward in promoting systemic change. It contributed to governance reform, improved teacher and education manager capacity, and positively impacted middle and secondary learning environments.

But in an age when USAID and educators globally are committed to evidence-based evaluation, ED-LINKS has been largely unable to demonstrate what, and how much, it has meaningfully changed. In particular, ED-LINKS cannot credibly demonstrate that its ultimate link—the link between teaching and student performance—actually exists. In this respect, ED-LINKS must carry heavy responsibility for missing an extraordinary opportunity to adequately document substantial and significant transformation or demonstrate sustainable improvement in the quality of education in Pakistan.

This evaluation addressed five core questions about the ED-LINKS project, which was launched in 2007 as a five-year, ~$90 million effort targeting middle and secondary school education. Implemented in parts of Sindh, Balochistan, ICT and FATA, the project's original development agenda had to weather on-going environmental disaster and conflict emergencies, massive relocations of displaced persons, along with corresponding funding cuts amounting to ~$35 million. These external forces contributed to, but were not wholly responsible for, ED-LINKS' failure to realize many of its original ambitious goals. Below is a summary of answers to the five core questions this evaluation addressed.

What were the greatest improvements in teacher quality training, student performance, and governance?

Given the lack of capacity to offer professional development to middle and secondary teachers in Pakistan, some of ED-LINKS' greatest improvements involved building a potentially sustainable and well-conceived teacher in-service training model. The ED-LINKS model combined instruction in content knowledge, pedagogy, and educative mentoring. To build capacity, it used Master Trainers in schools, colleges, and provincial training institutes, and offered transformational leadership training to principals, head teachers, and lead teachers. This model, with some modifications, has been adopted by other educational programs and by provincial governments.

ED-LINKS also improved governance capacity through capacity development of education managers, and enhanced the EMIS system, particularly at the provincial and district levels. This effort was most successful in supportive contexts where education managers demonstrated motivation to learn about and use data for decision making. Additionally, in the area of student performance, students appeared to appreciate and use ED-LINKS deliverables (e.g., computer and science labs) as long as they were placed within an adequate physical environment and supported by trained teachers.

How successful were the ED-LINKS activities in carrying out the various programs?

Overall, ED-LINKS was partially successful in carrying out its various programs. Within the area of student learning, for example, while the impact of teacher training could not be verified, the effort to improve student learning through incorporating formative and summative assessments was partially successful. Incorporating formative assessment showed the most promise at the middle school level, since the Exam Board system, along with the use of curriculum, has shown few signs of progressive change. Similarly, classroom materials and equipment—science clubs, computers, labs, and EXCEL camps, as well as US study experiences—were all considered useful and were highly appreciated by both students and teachers, but they were never adequately institutionalized within the government system. Within the area of teacher training, success depended, in part, on schools receiving multiple

interventions (i.e., head teacher and teacher training), having motivated Master Trainers or receptive district and school educational climates. The teacher training initiative was also less successful than it could have been due to lack of printed and disseminated professional development material, a factor tied to cuts to the ED-LINKS core budget. Within the area of governance reform, ED-LINKS achieved success in some areas (e.g., capacity training and hardware and software delivery), but experienced less success at engaging with government at the national and provincial level to ensure buy-in and ongoing institutional commitment for sustainability.

What were the major challenges faced by ED-LINKS and lessons learned?

The major challenges faced by ED-LINKS involved applying its comprehensive change model to the ground-level realities of the Pakistani education sector, whose structural driving forces are not always readily apparent and governance systems are not always open to new approaches and educational methods. Capacity development, training, and resource provision programs must take into account the context in which they occur, such as the buy-in of provincial-, district-, and school-level leadership and the low levels of initial capacity, such as no experience with computers, email, or data. ED-LINKS also faced major challenges in responding to USAID requests and juggling competing priorities, such as planning for and addressing flood- and conflict-related emergencies, with no increase in staff and resources.

Lessons learned include the need to promote sustainability with more purposeful institutionalization, being realistic and attentive to ground-level realities, maximizing synergy among projects, and planning and executing rigorous evaluation and monitoring activities.

What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan?

Future strategic directions include, overall, the need to engage in informed policy dialogue with national and provincial government leaders, prominent citizens and other diverse stakeholders to determine how and what changes are seen as essential to the nation's future. Other directions include engaging in systematic research around improving teacher training and student performance, particularly with respect to how student-centered pedagogy can best be implemented in a context of teacher quality issues, supervisory monitoring issues, and rigid exam systems. Additionally, it is suggested that Government and donors consider looking to the higher education sector to help institutionalize in-service teacher training and education management training across provinces, using basic benchmarks of progress, while piloting the best of ED-LINKS' more complex and resource-intensive practices (e.g., computer labs coupled with teacher training) within a smaller number of schools.

What was the government's response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?

Government was open, willing, and interested in the ED-LINKS model. ED-LINKS did capitalize on devolution (2001 and 2010), assisting Provincial and District Education Offices and staff to adapt to changing responsibilities, needs, and bloated bureaucracy—suggesting that innovations were not always viewed with suspicion. There is evidence the government systematically implemented some ED-LINKS' changes; for example, PIKEs appear to have adopted Master Trainers as resources and the national government undertook the training of education managers in planning, data management and fiscal management, and some education managers at the district level adapted data decision-making practices, despite power grid infrastructure issues and lack of IT support. Overall sustainability of changes is often not evident, including assessment, pedagogical and subject-matter training and computers, labs, science kits or science clubs; subject-specific training material, and printing and dissemination of materials remain challenges.

Broad recommendations that emerge from these findings include the following:

- **Be realistic**: Frame activities based on a realistic assessment of capacity and the environment in which the project must operate. For example, non-English speaking education managers may not understand manuals in English, may not have electricity to run computers, and may face rapid job turnover.
- **Maximize synergy**: Choose interventions that genuinely complement each other, rather than those that might add value because they are inherently worthwhile, but do not particularly contribute to other results sought. For example, place labs in schools where teachers will receive training needed to support the use of those labs and who will receive in-depth subject-related training.
- **Institutionalize sustainability**: Leverage public and stakeholder group interests. Build, when possible, on that which government already supports. For example, incorporate student performance assessments into EMIS systems cautiously, with provincial government backing. Engage in a high-level policy dialogue to create a shared vision and framework for a systems approach to change that can be institutionalized and sustained. Consider working through established higher education structures to support long-term sustainable system change.
- **Make monitoring and evaluation core to implementation**: Set timelines for initiation and completion of project M&E activities such as data gathering for a baseline for evaluating impact. The failure to conduct the crucial and anticipated baseline study of student and teacher performance not only made the strongest impact evaluation impossible but also jeopardized overall implementation of a sound monitoring effort tracking key indicators. Lack of such a baseline study represents a significant lost opportunity to help move forward the agenda for improved education quality in Pakistan.

More specific recommendations related to ED-LINKS core objectives include:

Student learning and the learning environment:

- Ensure a key role for formative and summative assessment—especially for student and teacher performance—to enhance the ability of teachers to link standards-based curriculum with formative and national exams.
- Pay close attention to physical environment in which materials and equipment are placed.
- Ensure training, mentoring and support for all schools and teachers using project inputs (labs, science and math kits) for synergy and sustainability.
- Create classroom- and school-based libraries in any literacy program, but align these with essential support, such as adequate physical facilities and training in their use, to avoid wasting resources.
- Find champions to support ED-LINKS' unfinished business of materials printing and CD production and distribution.
- Consider testing the best of ED-LINKS' activities within a sample of schools to learn how to scale up key project interventions to reach large numbers of schools at the lowest possible cost.

Teacher training and support

- Continue to support in-service professional development, including at the provincial level.
- Capitalize upon the project's proven teacher training model with school-based Master Trainers, and classroom practice with mentors.
- Ensure follow-up training, mentoring, and support after all training programs.
- Build on and decentralize ED-LINKS' teacher training model that integrates pedagogical skills, subject knowledge, and mentoring strategies.

- Mainstream teacher training using school-based mentors and community outreach for cluster schools to more efficiently maximize teacher participation rates, especially for women.
- Promote merit-based selection for teacher training.
- Expand the community of practice model for Master Trainers to facilitate scale-up and accommodation of change.
- Ensure adequate budget for female training that accommodates children and male escorts.
- Combine education management training with in-service training, using a school-based mentorship model.
- Benchmark innovations and interventions that are strategically tied to a broad policy vision.

Governance reform

- Build national and local government ownership and buy-in from the outset of any future programs through policy dialogue and shared commitments.
- Ensure national and/or provincial budget line-item support for promoting and supporting successful innovations such as science clubs, computer labs, and EXCEL camps.
- Secure the support of governments for in-service teacher training as an ongoing activity using the ED-LINKS mentoring model.
- Support policymakers and education managers to continue to improve the EMIS system and to use EMIS data to improve project management.
- Explore the politically sensitive incorporation of student performance data into the EMIS.
- Continue capacity development, focusing on lower and middle levels of the system, concentrating on those institutions where implementation decisions are made.
- Increase the management skills of education officials, including financial training for education mangers and head teachers.

Management

- Consider substantial changes in a project carefully. Changes in promised interventions fueled suspicion of USAID's good will and intentions.
- Consider reducing the number of activities rather than targets if cuts must be made. Keep at least one senior manager focused on original project objectives.
- Promote decentralization: Pay greater attention to the diffusion of expertise (e.g., placing subject content specialists for teachers at the district level and not just the provincial level).

Monitoring and evaluation

- Plan and execute M&E activities to ensure that information is in place to a) provide formative assessment feedback and b) allow the project to evaluate the impact of its activities.
- Hold staff development workshops to build knowledge and skills around the purpose and importance of monitoring and evaluations.

This report—responding to USAID's five core and 20 supplementary evaluation questions—listed with brief responses in the following table—elaborates in detail on ED-LINKS' challenges, shortcomings and achievements for future educational programming.

Table 2: Summary of ED-LINKS Evaluation Questions and Answers

<table>
<tr><td colspan="2">1. What have been the greatest improvements in teacher quality training, student performance, and governance as a result of the ED-LINKS project?</td></tr>
<tr><td colspan="2">Given the lack of capacity to offer professional development to middle and secondary teachers in Pakistan, some of ED-LINKS' greatest improvements involved building a potentially sustainable and well-conceived teacher in-service training model. The ED-LINKS model combined instruction in content knowledge, pedagogy, and educative mentoring. To build capacity, it used Master Trainers in schools, colleges, and provincial training institutes, and offered transformational leadership training to principals, head teachers, and lead teachers. This model, with some modifications, has been adopted by other educational programs and by provincial governments.

ED-LINKS also improved governance capacity through capacity development of education managers, and enhanced the EMIS system, particularly at the provincial and district levels. This effort was most successful in supportive contexts where education managers demonstrated motivation to learn about and use data for decision making. Additionally, in the area of student performance, students appeared to appreciate and use ED-LINKS deliverables (e.g., computer and science labs) as long as they were placed within an adequate physical environment and supported by trained teachers.

See Sections on 1st, 2nd, 3rd Objectives, especially pages 13-20; 21-32; 33-40 and Appendices 8, 9, 10</td></tr>
<tr><td>1.1 What progress has ED-LINKS made in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity improved access, quality, and sustained service delivery?
See pages 13-20; 21-32; 33-40</td><td>ED-LINKS made progress in all three targeted areas, although this is least clear with student learning and the learning environment due to an unacceptable lack of baseline data for teacher classroom practices and student performance. Training appeared to improve the capacity of a significant number of educators and administrators, but there was less progress in ambitious attempts to link interventions, including EMIS data collection, with student achievement, curriculum, and examination systems. ED-LINKS did document challenges and steps needed to make change; it paved the way for future interventions.</td></tr>
<tr><td>1.2 What are ED-LINKS' primary accomplishments from the investment of education core funds? How have core funds contributed to the overall success of ED-LINKS, e.g., have they provided innovation, tool development, scalability/replicability, field performance, leverage of field funding, other?
See pages 1-6; 16; 18; 36; 42; 45-48; 50; SoW: and A-3- A-6</td><td>Investment of core funds fell short of achieving accomplishments in the areas of innovation, tool development, scalability and field performance due in part to modifications to original agreement and shift of funds away from the last year or two of activities, when new tools were scheduled to be printed or produced and distributed. Primary accomplishments include use of EMIS data and educational management training information by education managers and principals in innovative ways to counter more established informal networks of influence (i.e., some feudal landlords, politicians, maliks), and the use of Master Trainers by education managers and provincial governments. Balochistan education department is using Master Trainers for in-service teacher training in all 22 districts. In Sindh, one EDO in Sukkor has created a strategy to use nine Master Trainers within his district. The Master Trainers model has been effective, especially where mentoring and follow-up have taken place involving school-based teachers trained as Master Trainers.</td></tr>
</table>

1.3 What are ED-LINKS primary accomplishments from the investment of field support? Are there specific accomplishments that have been achieved in a context of decentralized education services? *See Governance section, pp. 33-40; Appendix 7 and 10*	ED-LINKS worked at provincial and district levels in alignment with Constitutional amendment of 2010 that shifted power and responsibilities from national to provincial level. ED-LINKS helped enable decision-makers – those disempowered by the Constitutional amendment (e.g., EDOs and DOs) and those empowered (e.g., provincial government offices) – to gain knowledge, access resources, use EMIS data, and advocate more effectively for educational improvements. Examples: FATA college principals; EDO in Balochistan and some in Sindh; PITE and BOC directors, who obtained government funding.
2. How successful were the ED-LINKS activities in carrying out the various programs?	
Overall, ED-LINKS was partially successful in carrying out its various programs. Within the area of student learning, for example, while the impact of teacher training could not be verified, the effort to improve student learning through incorporating formative and summative assessments was partially successful. Incorporating formative assessment showed the most promise at the middle school level, since the Exam Board system, along with the use of curriculum, has shown few signs of progressive change. Similarly, classroom materials and equipment—science clubs, computers, labs, and EXCEL camps, as well as US study experiences—were all considered useful and were highly appreciated by both students and teachers, but they were never adequately institutionalized within the government system. Within the area of teacher training, success depended, in part, on schools receiving multiple interventions (i.e., head teacher and teacher training), having motivated Master Trainers or receptive district and school educational climates. The teacher training initiative was also less successful than it could have been due to lack of printed and disseminated professional development material, a factor tied to cuts to the ED-LINKS core budget. Within the area of governance reform, ED-LINKS achieved success in some areas (e.g., capacity training and hardware and software delivery), but experienced less success at engaging with government at the national and provincial level to ensure buy-in and ongoing institutional commitment for sustainability. *See Sections on 1st, 2nd, 3rd Objectives, esp. pp: 13-20; 21-32; 33-40 and Appendices 8, 9, 10*	
2.1 What was the original development hypothesis and how has it evolved over time? What needs did ED-LINKS address and how fulfilling the terms of the project design did it meet those objectives? *See: Fig. 1, p. 1; Eval. Q. B1: p. 67*	The development hypothesis did not change materially over the life of the project and operated according to the assumption that student learning, teacher training and support, and governance reform were all intertwined and influenced one another. Given that sustainability of ED-LINKS' interventions and activities is heavily dependent on government's institutional adoption and support, the development hypothesis might have been better conceived with student learning and teacher development circles overlapping within a larger circle of governance.
2.2 How effective is the ED-LINKS organizational and management structure in achieving results? How does the ED-LINKS structure maintain the quality of ED-LINKS work? *See Management section, pp. 47–51*	Organizational and management structure largely successful in achieving results, maintaining quality of work, except over-intertwined at senior level (i.e., Chief of Party, home office leadership). Decentralized ED-LINKS structure with staff in all EDO offices allowed ED-LINKS to work closely with these offices and gain first-hand knowledge of program implementation. Structure could be improved with greater decentralization, greater interaction at school level, increased diffusion of expertise, subject specialists at the district, and not just provincial, levels.

2.3 Is the ED-LINKS management team responsive and accountable to its key clients and partners: USAID Missions and host country partners (i.e. government and NGOs)? *See Management section, pp. 47--51*	Responsiveness and accountability of management team difficult to determine with many project modifications, frequent turnover of USAID and ED-LINKS staff, devolution of authority from national to provincial levels. In some ways ED-LINKS management may have been overly responsive to USAID, accepting numerous and substantial modifications that significantly changed project focus and the attention paid to core activities. ED-LINKS for the most part was responsive and accountable to host-country partners, holding regular meetings enabling partners to achieve results, with caveat that modifications resulting in lack of funds forced some partners such as AKU to end relationship early. Confusion over roles, responsibilities and work plans arose with key partners such as MSI and to lesser extent with AKU, and may have resulted in perceptions that the ED-LINKS management team – especially in the earlier and middle years – lacked responsiveness.
2.4 Are the systems developed by ED-LINKS for monitoring, evaluation, and knowledge application effective? How have these elements of the program supported the achievement of the overall project objective? *See Evaluation section pp. 52-61 and Appendix 13*	Monitoring, evaluation and knowledge application systems supported project objectives, allowing ED-LINKS staff to track wide range of activities over broad geographical area with as many as 37 regional and district offices. Staying in close touch with program activities helped ED-LINKS strengthen its efforts in governance reform and teacher training. Emergency situations such as IDPs in Malakand in 2009 and devastating floods in the following years impacted ED-LINKS' ability to monitor activities since staff were spread thinner and the focus of activities was much broader.
2.5 Has the USAID Missions been effective in managing the ED-LINKS activity? *See Management section, pp. 47--49*	Given context of cascading and major emergencies and frequent USAID staff changes, it is not surprising that the USAID's management of this project fell short of ideal. ED-LINKS-USAID relationship was initially highly interactive, with weekly reports from ED-LINKS, but high staff turnover and the shift to a broader range of activities, some with short-term objectives, with 13 agreement modifications resulted in more fragmented communication and less effective management of the project.
3. What were the major challenges faced by ED-LINKS and lessons learned?	

The major challenges faced by ED-LINKS involved applying its comprehensive change model to the ground-level realities of the Pakistani education sector, whose structural driving forces are not always readily apparent and governance systems are not always open to new approaches and educational methods. Capacity development, training, and resource provision programs must take into account the context in which they occur, such as the buy-in of provincial-, district-, and school-level leadership and the low levels of initial capacity, such as no experience with computers, email, or data. ED-LINKS also faced major challenges in responding to USAID requests and juggling competing priorities, such as planning for and addressing flood- and conflict-related emergencies, with no increase in staff and resources.

Lessons learned included (1) Institutionalize for sustainability by building ownership into a project, with firm organizational, management and financial commitments up front at national, district and school levels. USAID should consider working more actively through Pakistan's existing network of teacher-training colleges and established educational university structures to bring about sustainable positive change. (2) Be realistic about formal and informal systems that influence project activities; capacity of teachers and educators to adopt new practices and assessment systems; transparency in the selection of participants; and capacity of EMIS offices to implement the training that staff received. (3) Maximize synergy by choosing and linking project activities carefully. Governance reform could have been linked to other activities beyond EMIS, to student assessment systems, for example. (4) Plan and execute rigorous monitoring and evaluation activities for formative assessments and to enable project to evaluate impact of activities; ensure sound baseline data collection. (5) Maintain project focus within an environment of changing targets and financial re-allocations by keeping at least one senior manager focused on original project objectives; with cuts, consider cutting back on number of activities rather than cutting targets across the board. (6) Maintain, replicate 'bookend' mentoring model that alternates workshop training with classroom practicum experience.

See Introduction: pp. 10-12; Student Learning pp. 13-15, Teacher Training: pp. 23-32; Governance: pp. 33-40

3.1 What specific technical approaches or products of ED-LINKS have demonstrated the greatest impact in developing teacher education and professional development; student learning and achievement, and governance of teaching and learning? *See Teacher Training pp: 21-32; Governance pp: 33-40*	ED-LINKS developed a systematic, more inclusive approach to teacher education and professional development involving selection and training of Master Trainers and teachers as in-service training participants. Unlike in the ESRA project and in much of ED-LINKS as well, some DOs and head teachers were invited to participate in the selection of teachers, and competency tests were conducted to screen Master Trainers. Although this was an imperfect system, with education managers still at times finding ways to select "favorites" regardless of merit, this technical approach helped build ownership of the in-service training and enhance sustainability. The creation of teacher in-service training materials was another important technical approach, in terms of the ability of provincial PITEs and BoCs to have access to material developed by Master Trainers within their own provinces, and piloted in schools with teachers. This material, although yet to be printed, can be used by governments for their own trainings or be shared with others who can use such material in their own work.

3.2 What is the value-added of developing teacher education and professional development; student learning and achievement, and governance of teaching and learning tools developed or refined under the ED-LINKS program? Who uses these, why, and how? *See Student Learning pp. 13-20; Teacher training: pp. 21-32;*	ED-LINKS' value-added was the professionalization and increased capacity of the teachers and education managers. Evidence suggests that some changes stuck and diffusion-like organizational changes may occur as teachers and education managers transfer to new posts and rise within the education structure. Whether these bring about a critical mass or "tipping point" would be difficult to verify, but may occur as popular calls for increased accountability in public education become more prominent. Balochistan's education department is using ED-LINKS Master Trainers for in-service training in all 22 districts. Linking student assessments to exams made little progress but it was a value-added activity in clarifying challenges and opportunities facing USAID or other donors who seek to address this issue. The 256 exams that were created as part of the ED-LINKS project represent a pilot effort that can be built upon although District Exam Committees must meet more often than once a year, given the number of exams and frequency of changes.
3.3 One of the key approaches of ED-LINKS has been to facilitate nationwide and subsequent provincial standards for primary and secondary teacher education that conform to the guidelines for the GOP's new curriculum with particular focus on science, math, and computer subject areas. *See Student Learning pp: 17-19; Teacher training pp: 21-32*	Challenges faced by ED-LINKS in facilitating nationwide standards for teacher education has included the 18th amendment to the Constitution in 2010 and subsequent shift of curriculum development to provinces. ED-LINKS' response was to work with Sindh and Balochistan to use the national 2006 curriculum, which represents the most up-to-date curriculum available, to adapt their different syllabi accordingly, including teacher guidelines and lesson plans for science, math, English, and computer science. ED-LINKS proceeded cautiously in this area, especially given political, social, and cultural debates over what languages to use – English, Urdu, Sindi, etc. – and reluctance to change national board exams. Annual meetings around this issue, involving multiple stakeholders, may have been insufficient for the complexity of the issue.
3.4 Has the investment in these teacher education and professional development activities contributed substantially to ED-LINKS ability to replicate and scale up more effectively? Do these activities inculcate best practices for encouraging learning outcomes and fostering a positive learning environment? *See Teacher Training pp: 21-32*	Investments in teacher education and professional development have contributed to ED-LINKS' ability to replicate and scale up. Development of teacher training material now owned by provinces and training of Master Trainers and transformational leaders at district and school levels enable potential replication and scale-up. In ICT, Sindh and Balochistan education directorates are discussing and/or scaling-up elements of ED-LINKS training. The ED-LINKS and AKU-IED's models in large measure represent global "best practices for Master Trainers that can potentially be replicated and scaled up as curriculum, syllabus, or exams change and new teacher-training material are developed. ED-LINKS was less successful with science and computer labs, with the exception of low-cost, no-cost materials training, because training did not always appear to occur concurrently with delivery of materials, and fewer labs were established than planned due to program modifications.

3.5 How has ED-LINKS replicated and scaled up successful technical approaches and products? What lessons have been learned about the process of replication and scale- up, particularly the transfer (applicability) of approaches and products to different provinces? *See Student Learning pp. 13-20; Teacher training pp: 21-32*	ED-LINKS was able to replicate several technical approaches across provinces. This included the establishment of classroom libraries in ICT and FATA, the use of no-cost, low-cost materials development in science training, and education management training. In rural Balochistan, education management training needed to be adapted to fit the needs of participants, who had less familiarity with the concept of data. In ICT, with its smaller geographic size, head teachers could be included in the training. In Sindh and Balochistan, which have more complex education management structures, ED-LINKS found it made sense to include learning coordinators in addition to district education managers.
3.6 Compare ED-LINKS mainstreaming strategies and approaches to develop required pedagogical skills, subject knowledge, classroom delivery, creativity, improvisation, and questioning skills that would enhance the value of education with regard to efficiency, effectiveness, and sustainability in the field. *See Teacher Training pp: 21-32*	Mainstreaming strategies to develop pedagogical skills, subject knowledge, etc. appear to be among the most effective, efficient and sustainable in use in Pakistan and globally. Subject-specific mentorship (co-teaching) improves pedagogical skills, subject knowledge, and classroom strategies fostering critical thinking, creativity, and improvisation—even in classrooms of over 100 students. These could be enhanced by examining CIDA's approach in Sindh with school-based mentors for cluster schools that circumvents issues of hierarchy between college- and school-level participants and maximizes teacher participation. Student-oriented practices, such as group learning, are still embraced by ED-LINKS participants several years after training. These improved on previous models, such as cascade training that lacks balance between pedagogy and content, or training that assumes a Master Trainer can be "a jack of all trades." Despite the successful ED-LINKS model, implementation was undermined by lack of resources for materials, for Master Trainers to pay follow-up visits to schools and by significant in-school challenges such as politically influenced or preoccupied educators who resist change, hierarchies between junior and senior teachers, and the pressure of teaching to exams. Such pressures can be most intense in the "best" schools, where students compete for the highest exam marks (e.g., SSC part II science).
4. What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan?	
Future strategic directions include, overall, the need to engage in informed policy dialogue with national and provincial government leaders, prominent citizens and other diverse stakeholders to determine how and what changes are seen as essential to the nation's future. Other directions include engaging in systematic research around improving teacher training and student performance, particularly with respect to how student-centered pedagogy can best be implemented in a context of teacher quality issues, supervisory monitoring issues, and rigid exam systems. Additionally, it is suggested that Government and donors consider looking to the higher education sector to help institutionalize in-service teacher training and education management training across provinces, using basic benchmarks of progress, while piloting the best of ED-LINKS' more complex and resource-intensive practices (e.g., computer labs coupled with teacher training) within a smaller number of schools. *See Conclusions & Recommendations pp. 74-80*	

4.1 What are the priority areas for future education core investments to address USAID's primary objective to improve literacy. *See Introduction p. 1-11; Conclusions & Recommendations pp. 74 - 80*	In-service teacher training should be a priority area; a model built on school-based mentoring for cluster schools should be considered as a primary implementation design. Teacher training should minimize non-transparency in participant selection; workshops should be as decentralized as possible. Sufficient resources from government as well as the donor should be budgeted for training activities. Learning environment enhancements - e.g., libraries - should be funded. Institutionalization of student assessment systems should be pursued as a long-term means of transforming teaching.
4.2 What components of the ED-LINKS portfolio should be maintained in their current form? What components should be retained, but modified? Are there components or approaches that are no longer needed? *Conclusions & Recommendations pp. 74-80*	USAID should maintain in its current form the over-arching model of linking student performance to reforms involving schools, teachers, and government officials. Government schools and the performance of teachers and education managers are profoundly impacted by government policies and thus change models need to use a systems approach. Components to be retained, but modified, include: (1) in-service teacher program and training of education managers and head teachers; (2) capacity building of provinces to undertake teacher in-service training; (3) improvement of student assessment systems and the ability of teachers to link standards-based curriculum with formative and national exams; (4) provision of science and computer labs—only when linked to teacher training on their use and provision of adequate physical facilities, maintenance and support; (5) capacity development as a part of governance strengthening—concentrated on lower levels where implementation decisions are concentrated; (6) training to help policymakers and education managers utilize data, whether in soft or hard copy formats, as well as the incorporation of student performance data into the EMIS. Components comparatively less needed include further EMIS-related computer and hardware delivery, computer skills and software training, and improved data collection techniques. Understanding of data-driven decision-making needs to take place before tools such as computers and software can be utilized.
4.3 What are the prospects and the main challenges for continued utilization of tools developed or refined under ED-LINKS after the end of this cooperative agreement? *Conclusions & Recommendations pp. 74-80*	Challenges include identifying champions to secure funding for the printing and distribution of teacher resource guides developed by AKU-IED, and math, science and English CDs developed by the Teacher Resource Centre that because of funding cuts were never printed or distributed. The materials developed by Master Trainers and AKU-IED are not outdated and can be used by provincial education departments, PITEs, and BoCs. The CDs also are current and relevant.

4.4 What are some promising new developments in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity that should be explored in possibly future activities? *Conclusions & Recommendations pp. 74-80*	Promising new developments include the development of a school-based mentorship model to impart both pedagogical and subject-specific content. This is particularly promising in Pakistan where government teachers have often been appointed as part of a political patronage system, where supervision can be of limited effectiveness, and opportunities for developing professional teacher standards have been lacking. The training of head teachers and education managers as transformational leaders is also promising, particularly when combined with in-service training. Other promising opportunities include (1) alignment of teaching to formative assessments, learning objectives, and a standards-based curriculum; (2) increased management/governance skills of education officials given that managers are appointed on the basis of seniority and political networks and have little management training.
5. What was the government's response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?	
Government was open, willing, and interested in the ED-LINKS model. ED-LINKS did capitalize on devolution (2001 and 2010), assisting Provincial and District Education Offices and staff to adapt to changing responsibilities, needs, and bloated bureaucracy—suggesting that innovations were not always viewed with suspicion. There is evidence the government systematically implemented some ED-LINKS' changes; for example, PIKEs appear to have adopted Master Trainers as resources and the national government undertook the training of education managers in planning, data management and fiscal management, and some education managers at the district level adapted data decision-making practices, despite power grid infrastructure issues and lack of IT support. Overall sustainability of changes is often not evident, including assessment, pedagogical and subject-matter training and computers, labs, science kits or science clubs; subject-specific training material, and printing and dissemination of materials remain challenges. *See Teacher Training pp: 21-32; Governance pp: 33-40*	
5.1 What are the priority areas for future education core investments to address USAID's primary objective to improve literacy. *See Introduction p. 1-11; Conclusions & Recommendations pp. 74-80*	(1) In-service teacher training built on school-based mentoring for cluster schools. (2) Teacher training that minimizes non-transparent means of selecting participants. (3) Decentralization of workshops to maximize women's participation. (4) Sufficient resources from government and USAID for ongoing support of training activities. (5) Literacy packages including classroom- and school-based libraries. (6) Assessment of successful literacy efforts, previously or currently within or outside Pakistan, adapted, as appropriate, for use in any future efforts to improve literacy. (7) Institutionalization of student assessment systems as a long-term intervention.

5.2 How was ED-LINKS perceived by the intended beneficiaries? Where there gaps between objective results and perceptions of those results? Why? *See Beneficiary Perceptions pp. 41-46; Appendix 11*	Beneficiaries interviewed including students, teachers and Master Trainers generally perceived ED-LINKS positively, with a few exceptions related mostly to the dynamic nature of ED-LINKS' programming. Some national-level staff within the Steering Committee and at NEMIS questioned the competency trainers and consultants, particularly around data management systems and subject-specific content for teachers. Some ED-LINKS partner organizations, such as MSI and AKU, perceived ED-LINKS to be unreliable in terms of continued funding and commitment, although they recognized USAID had shifted funding priorities. At the grassroots, some participants perceived ED-LINKS, and more visibly USAID, as breaking commitments to provide promised school interventions such as computer labs, which fueled suspicion of USAID's intentions, a general challenge facing external donors well documented in the media.

Organization of the Report

The ED-LINKS performance evaluation opens with preliminaries that include the Executive Summary, followed by an introduction and overview of ED-LINKS, USAID's request for this evaluation, and a review of the JBS/Aguirre evaluation methodology. A brief background of the education sector in Pakistan sets the stage for an assessment of each of the three main components of the project: student learning and the learning environment, teacher training and support, and governance reform. A summary of perceptions of project activities from stakeholder interviews provides insight into the qualitative data that materially informed the assessment of the three components.

An examination of management and oversight issues regarding both the project and the donor precedes a comprehensive description of issues surrounding the evaluation of the "ultimate link" in ED-LINKS, the link between teacher performance and student learning. A summary of findings and conclusions for each of USAID's 25 questions for this evaluation follows. The report closes with conclusions about ED-LINKS' performance and recommendations for future programming.

Appendices include additional education sector background information, additional information about the implementation of the project's three primary interventions, a technical note on ED-LINKS' own impact evaluation, stories from the field, and qualitative data tables presenting the results of individual and group interviews with nearly 200 people that were undertaken primarily during the evaluation team's field trips to Sindh, Balochistan, and FATA.

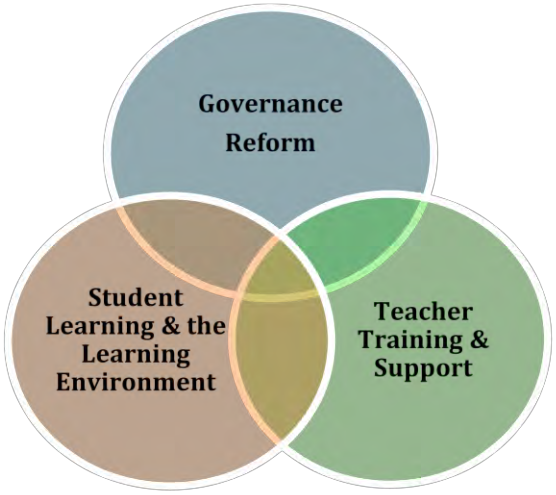
INTRODUCTION AND OVERVIEW

Introduction

In March 2007, the Education Team Leader, USAID/Pakistan, submitted a memorandum requesting that the Mission Director approve nearly $90 million for the new five-year "Links to Learning" Education Program (ED-LINKS). The memo noted that "[o]ne of the most pressing problems that plague public sector education in Pakistan is the perpetuation of outdated methods of teaching and learning. The effects of a poor system of teaching and learning in Pakistan are students who leave the system with no capacity for critical thinking, or much worse, are illiterate (literacy rates in Pakistan are 53% overall and as low as 18% for females in rural areas)." Furthermore, the memo asserted that the quality of education provided by the public sector had been poor because of low levels of teacher competence, lack of classroom-based support for teachers, poor quality of textbooks and learning materials, lack of systems to assess student-learning outcomes, uneven supervision, insufficient resources for critical teaching and learning materials, and weak sector governance and management. [3]

ED-LINKS was conceived in 2006 and early 2007 as USAID's $83 million Education Sector Reform Assistance (ESRA) Program was coming to an end. Since its launch in 2003 ESRA had concentrated on primary school education in a program that combined (i) policy and planning, (ii) professional development of teachers and administrators, (iii) adult and youth literacy, (iv) public community and public-private partnerships, and (v) innovative information and communication technology.[4] Now the Mission was interested in shifting its focus from primary to middle and secondary schools. When USAID discussed this with the Government of Pakistan, a new project goal in addition to teaching and learning emerged as key – governance reform to sustain the other activities. USAID decided to continue the governance work that had begun within ESRA [1] in order to maximize the potential that policies and programming capable of sustaining ED-LINKS' activities would be institutionalized. [1]

Figure 1: Development Hypothesis (Abbreviated Version)



In the ED-LINKS development hypothesis teacher training, student learning and governance reform are linked and positive developments in one arena can have a positive impact on the others. This is best represented as three separate, but overlapping, areas of activity that are integral to achieving project objectives (see Figure1).

In October 2007 USAID signed a Cooperative Agreement with the American Institutes for Research (AIR) to implement ED-LINKS. The project was ready for launch.

[3] USAID, "Action Memorandum," March 15, 2007, p. 1. Hereafter cited as "Action Memorandum 2007."
[4] Academy for Educational Development, "Evaluation of the Education Sector Reform Assistance (ESRA) Program" June 2008, p. 18.

Overview

Intermediate Results and funding: ED-LINKS' programming was thus guided by the need to achieve three key Intermediate Results, and core activities ran a wide gamut: [5]

Intermediate Result 3.1: *Improved student learning and the learning environment* through developing systems for gauging student learning and achievement, strengthening of assessment, and providing learning tools and classroom inputs aimed at improving student achievement

> *Key activities (improved student learning and the learning environment; improved classroom instruction; improved student assessment systems; increased use of classroom materials and equipment):* Introduction of formative student assessment systems, support to teachers and students in the development of science projects, math, science and English active learning "EXCEL" camps, distribution of math and science kits to schools, establishment of science and computer labs, formation of Science clubs and training and exchange programs in Washington, DC.

Intermediate Result 3.2: Improved teacher education and professional development through providing institutional and academic support that is centered on student achievement and learning outcomes

> *Key activities (improved teacher education and professional development; increases academic supervisors'/head teachers' ability to provide support to teachers in classrooms; in-service training improved):* Teacher professional development in science, English, math and computer education, strengthening of Bureaus of Curriculum (BoCs) and PITEs, and the training of teachers in the development of low and no-cost teaching and learning aids.

Intermediate Result 3.4: [6] *Governance reforms supported and public sector capacity strengthened* at the federal, provincial and district levels to sustain quality teaching and learning.[7]

> *Key activities (improved governance and strengthened public sector capacity in educational budgeting and administration at the federal, provincial, and district levels to sustain quality education; EMIS data quality and accessibility improved; RSUs in three regions help government use data in policy and planning; strengthened communication and coordination between education offices at the district, provincial and federal levels; increased management and budgeting capacity of education officials):* Capacity and institutional development of the Academy for Education Planning and Management (AEPAM) in Islamabad, the Reform Support Unit in Sindh and the Policy, Planning and Implementation Unit (PPIU) in Balochistan. For education managers working at the school and district level - professional development in academic supervision, planning, management, monitoring and budgeting, and the use of information technology education management and EMIS data in planning, management and monitoring functions. EMIS units equipped with hardware and software, and staff supported to collect, collate, manage and distribute education data.

The Results Framework for ED-LINKS can be found in *Appendix 1*.

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[5] AIR, "ED-LINKS – Core Sindh and Balochistan Final PMP and Achievements (as per close-out report)." AIR, "ED-LINKS Core Program Final Report, April 2012, pp. 3-4. Please note that additional activities were added to the ED-LINKS portfolio during the course of implementation; the initial project activities are categorized as "core activities" to distinguish them from the additional foci of ED-LINKS, and it is the core activities that are the focus of this evaluation.

[6] The Final ED-LINKS PMPs for the implementation areas refer to the governance intervention as the fourth IR (3.4), the categorization of this component at project start-up.

[7] In an effort to understand better which ED-LINKS schools were strong/weak in what respects, the project undertook a "baseline survey" in mid-2008 which inventoried a variety of elements that distinguished one school from another; areas of interest were infrastructure, the learning environment, governance matters for improving the learning environment, and head teachers' and teachers' capacity and training. This survey is discussed later in the report.

Funding for the activities to be undertaken in different focus arenas over the life of ED-LINKS ranged from approximately $22 million for improved teacher training, to nearly twice that - $40 million for improved governance. (See Table 2.)

Table 3: Initial funding for ED-LINKS Activities, by Intermediate Result

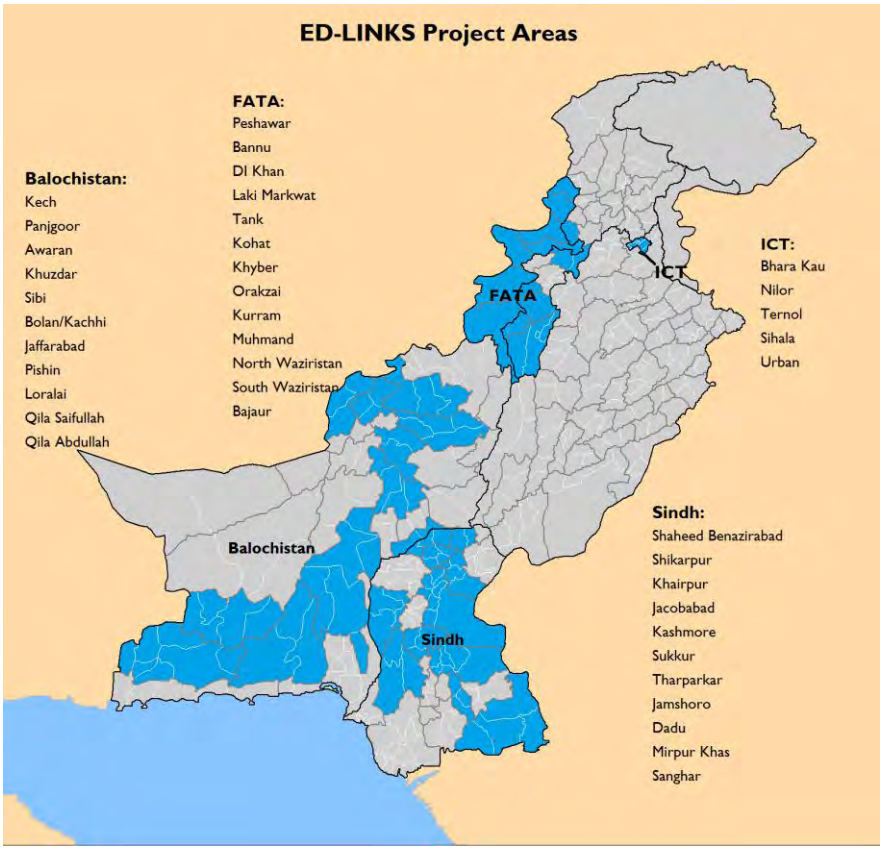
Intermediate Result (IR)	Description	Amount
3.1	Improved student learning and the learning environment	$27,745,539
3.2	Improved teacher education and professional development	$22,191,689
3.4	Improved governance and strengthened public sector capacity at the federal provincial and district levels to sustain quality teaching and learning	$40,062,689
TOTAL		$89,999,917

Source: USAID/AIR, "Cooperative Agreement No. 391-A-00-08..01100..00, ED-LINKS," Attachment A, p. 2.

Geographic areas of implementation and ED-LINKS schools: ED-LINKS worked across four provinces and regions in Pakistan, as shown in Figure 2 (and outlined in Table 4, below, and Tables 11 and 12 in *Appendix 2*). The project included between 10 to 25 percent of schools in any single district or agency where it was implemented. The quality of public schools in Pakistan varies greatly,[8] but the overall quality of education provided by these different ED-LINKS intervention schools was not known at project start-up. To illustrate that variability, one Assistant Development Officer (ADO) in ICT estimated that about 20 percent of middle and high schools in his sector were good, another 30 to 40 percent were of medium quality and could be improved, and 50 to 40 percent functioned poorly and were of low quality.

[8] Retallick, J., "Successful schools: What can we learn from them?" 2009

Figure 2: ED-LINKS Project Areas



Implementation timeline: Implementation of these core activities was to flow over five years, until 2012, but as will be discussed, by late 2011 AIR's work on these activities had ended. Table 12 in *Appendix 2* provides a timeline of their actual implementation, by geographic area.

ED-LINKS' reach: Over the life of the project ED-LINKS' reached over 1,800 schools, trained nearly 6,000 teachers and nearly 700 head teachers or other education officials as part of the project's cascade training model. The table below summarizes key outreach figures, by project area.

Table 4: ED-LINKS: Total Project Outreach Numbers

Province/ Region	Schools	Teacher Educators Trained/Oriented	Teachers Trained	Students
Sindh, Balochistan, ICT	684 (372 boys and 312 girls)	359/90	5,325 (1,454 F, 3,871 M)	144,929 (78,649 boys and 66,280 girls)
FATA	574 (424 boys and 150 girls)	227 (58 F, 169 M)	298 (140 F, 158 M)	72,883 (58,915 boys and 13,968 girls)
Total	**1,258**	**676**	**5,623**	**217,812**

Source: ED-LINKS, August 2012. Note that unshaded area signifies Sindh, Balochistan and ICT data (disaggregated data unavailable). Shaded area signifies FATA. FATA data exclude 350 participants in annual

school census, EMIS training and EMIS data collection. The degree of overlap in different training activities in FATA is not always clear from a reading of project documents.

Chronology of events and project modifications: USAID did not ask AIR if it would incorporate any unanticipated modifications to ED-LINKS' activities over the project's first year. As will be discussed later in this report, over time, ED-LINKS did undergo a series of changes in its focus and funding. Table 5 summarizes these changes over the life of the project.

Table 5: Chronology of Events and Modifications to Project Design

October 2007	ED-LINKS sets up its head office and regional offices in Pakistan
September 2008	Cooperative Agreement modification: ED-LINKS sets up schools in IDP camps for displaced families for FATA
April 2009	Cooperative Agreement modification: ED-LINKS introduces community-driven school improvement in FATA
May 2009	Cooperative Agreement modification: ED-LINKS sets up schools in IDP camps for displaced families from Khyber Pakthunkhwa
October 2009	ED-LINKS closes down schools for IDPs from KPK as families return home
January 2010	ED-LINKS closes down its last schools for IDPs form FATA as families return home
March 2010	Cooperative Agreement modification: ED-LINKS introduces community-driven school improvement in Malakand Division, and re-designs its core work plan to demonstrate a transition of ownership to local entities.
September 2010	Cooperative Agreement modification: ED-LINKS starts support to flood-affected schools in target districts
May 2011	ED-LINKS completes the first phase of support to schools in Malakand Division
June 2011	Cooperative Agreement modification: ED-LINKS starts the second phase of support to schools in Malakand Division
June 2011	ED-LINKS closes down its FATA program
December 2011	ED-LINKS wraps up its core program

Source: ED-LINKS, Responses to Self-Assessment Questions, prepared for performance evaluation, June-August 2012.

Table 6 sets forth key shifts in project resources that enabled the activities added to ED-LINKS to be funded.

Table 6: ED-LINKS: Reductions in Initial Project Funds (for Core Activities)

	Item Description	Reductions (US$ in Millions)	Size of Reduction (% of Original Funding)	Remaining Funds for Core Activities (US $ in Millions)*
A	Initial Project Funds for Core Activities (Total)			**89.999**
B	FATA IDPs (September 2008)	2.426	2.7	87.573
C	Malakand Conflict-affected Schools (March 2010)	8.248	9.2	79.325
D	Flood Assistance (September 2010)	10.399	11.6	68.926

E	Other Reductions from Initial Project Funds	13.014	14.4	55.912
F	**Total Reduction / Re-Allocation from Initial Project Funds**	**34.087**	**37.9**	
Total funds after reductions (% and US $ value)			**62.1**	**55.912**

Source: ED-LINKS. Please note that initial FATA funds were $3.34M which later increased to $9.7M. The increase ($6.36M) in FATA funds was met through shifting funds from Sindh, Balochistan and ICT budgets.

ED-LINKS EVALUATION SOLICITATION

In March 2012 USAID/Pakistan issued a Request for Quotation (RFQ)/Proposal for an external performance evaluation of the core activities of ED-LINKS. This summative evaluation would be the only performance evaluation of the project because ED-LINKS never underwent a mid-term review. The RFQ stated:

The purpose of this performance evaluation is to systematically investigate and document the outcomes of the core programs that were implemented from 2007 to 2010 in (1) teacher education and professional development; (2) student learning and the learning environment; and (3) governance reforms and strengthened public sector capacity. [9]

Specifically the evaluation was to have five "overarching outcomes:"

> 1. To investigate if ED-LINKS has been effectively implemented, and whether or not it has managed to achieve the three core goals stated in the cooperative agreement;
>
> 2. To find out if ED-LINKS has made an impact on the target groups, i.e. the middle and secondary school students, the teachers and school administrators, and key government officials;
>
> 3. To assess if ED-LINKS resulted in any systematic changes in the teachers, administrators, and government officials' attitudes and practices after their association/collaboration with the program;
>
> 4. To find out if/how the numerous modifications of ED-LINKS scope of work altered the effectiveness of the program implementation; and
>
> 5. To get a better understanding of how ED-LINKS is perceived by the Government of Pakistan and other stakeholders, i.e. parents, community members and community leaders, and students themselves.[10]

To guide evaluators in looking at these five outcomes, the Mission articulated in the RFQ five key questions, which were supported by a series of 20 more detailed questions. All of these questions are listed in *Appendix 4* and are also in the Statement of Work in *Appendix 3*.

[9] USAID, RFQ for ED-LINKS Final Evaluation, 2012, p. 4. Hereafter cited as "USAID Evaluation." Note that the evaluation was to assess performance pertaining to core activities only.
[10] USAID Evaluation, pp. 4-5.

RESEARCH DESIGN AND EVALUATION METHODOLOGY[11]

Evaluators used a mixed methods approach for the performance evaluation of ED-LINKS, collecting evidence from a variety of sources to triangulate findings. Sources and data collection methods included:

- Interviews with 219 individuals, individually or in small groups, 216 in Pakistan - almost all in Sindh, Balochistan, FATA or ICT.
    - Informal surveys and group discussions with a small sample of male and female ED-LINKS teachers (91), Master Trainers (28), and students (14) currently enrolled in ED-LINKS schools, particularly in FATA, Sindh and Balochistan.
    - Meetings with 32 participants in Educational Leadership and Management workshops and 15 individuals involved with the Education MIS in all four project areas.
- Key informant interviews with 57 officials including ED-LINK senior management, Education District Officers, District Officers, Assistant Education Officers, Assistant Development Officers, and officials with PITE, BoC, BEMIS, RSU, AKU-EB, AKU-IED, TRC.
    - Interviews with seven current or former USAID officials.
- Primary databases maintained by AIR of all participating ED-LINKS institutions and schools.
- Secondary data from over 200 reports, memoranda, briefing papers, articles, books.
- Eyeball analysis of qualitative data.
- Quantitative data analysis using descriptive and inferential statistical techniques. (See note on quantitative analysis in ***Appendix 13***.)

Document Review
USAID provided the evaluation team with approximately 150 ED-LINKS-related documents to inform the evaluation plus another 65 documents identified and reviewed during the evaluation and an ED-LINKS self-assessment of project implementation provided later in the evaluation period.

Qualitative Data, Interviews and Instruments
To provide an evidence-based holistic picture of ED-LINKS to complement available quantitative data, reports and analyses—and to help mitigate the constraints detailed above—the evaluation team complemented in-depth interviews with officials, beneficiaries and stakeholders with roundtable discussions with students, teachers and Master Trainers using as appropriate a "case incident" protocol and Appreciative Inquiry approach built around the core questions of "What worked?" and "What would even better look like?" These helped in the generation of grounded, evidence-based, specific observations from interviewees, rather than merely generic observations.

Data recording and compilation
Due to internet access, load shedding and personal security concerns over recording sometimes sensitive information, most evaluation team members chronicled the substance of interactions with those interviewed, through handwritten, reflective field notes. Senior evaluation team then probed for additional information, observations and insights through in-person debriefings following fieldwork.

These were particularly useful to better understand gender differences, since male and female evaluation team members were not always comfortable talking about differences in perceptions in mixed-gender settings. Questionnaires used with different stakeholder groups and the key informant instrument appear in *Appendix 6*. Summaries of the field interviews appear in *Appendix 14*.

[11] For a full discussion of Research Design and Methodology, see ***Appendix 6***

Quantitative Data Quality Check

JBS/Aguirre undertook data validation procedures to determine the reliability of extant databases to determine, to the extent possible, whether or not the results of analysis already done were well-founded and whether or not other analysis might be carried out to support future project planning. (See ***Appendix 13*** for detailed statistical assessment and in-depth econometrics analysis of the evaluation methods undertaken and an alternative general model.

Methodology and Research Limitations and Qualifications

Among the greatest challenges encountered during the evaluation process was the absence of baseline data as well as limitations regarding assessments of student and teacher performance, the different units of analysis of various data sets and the small size of some data sets for drawing meaningful conclusions. Nonetheless attempts were made to link or triangulate databases where possible, to assess data regarding math and science kits; computer labs; supplemental materials and enhanced science labs. Another major constraint limiting triangulations was that the only data available on student performance disaggregated at the student level were from Balochistan and Sindh provinces - the same data that AIR used in its impact study.

The evaluation used purposive sampling to determine who would be interviewed. As a result, findings may not be extrapolated to the larger populations involved. Additionally, interviews, narratives, and other forms of qualitative data gathered through this evaluation are not being used to make claims of reliability or validity about any particular population, or to make claims about the reality or "truth" of a particular situation. Case study narratives, which can lead to a deeper understanding of the experienced meaning of an event for a participant, are of limited value in providing trustworthy generalizations or revealing how characteristics or impacts are distributed throughout a population. Additionally the qualitative interviews and surveys collected as part of this evaluation, while they seek to identify how ED-LINKS was perceived to operate by different participants and groups, are of limited value in claiming "objective truth," as they are forms of inquiry mediated by the interaction between the interviewer and the interviewee, or among group participants.

To identify teachers and Master Trainers for interviews, the team had to depend on ED-LINKS to provide names and contact information. Although the team selected names randomly from lists in the ED-LINKS office, the actual contacting of individuals, however, was carried out by ED-LINKS staff to expedite efficiency, given the short time for this evaluation and possible credibility issues that could plague evaluation team members unknown to the community. This could compromise candid sharing by those interviewed, no matter how clear team members might be at the beginning of an interview or meeting about their independence from the project.

While the evaluation team was able to reach out broadly into all of the project areas, security issues, particularly in Balochistan and FATA, mitigated against a fuller array of interviewees to inform the research findings.

BACKGROUND ON EDUCATION IN PAKISTAN[12]

Introduction

Pakistan's education sector is widely acknowledged as being crucial to Pakistan's future development. This commitment to education can be seen in Pakistan's national policies and laws, such as a 2010 amendment to the Constitution that requires the State to provide free and compulsory education to all children five to 16 years of age. Yet Pakistan continues to rank comparatively low on most education indicators for South Asia, and its public education system must grapple with deeply entrenched challenges at all grade levels.

These challenges include inadequate physical infrastructure and facilities, under-investment in quality education, lack of proper and regular supervision and monitoring of schools, lack of clarity in roles and responsibilities among education managers[13], a large out-of-school population of 43 percent and high drop-out rates[14], poor teacher quality, subjects not corresponding to market needs, multiple examination boards of varying quality[15], and the burgeoning rise of a parallel, private education system.

Additionally, middle and secondary education in Pakistan faces unique challenges, with "middle and secondary education" generally referring to grades 6-8 (middle), to grades 9-10 (secondary), and to grades 11-12 (upper secondary). Despite reportedly having fewer problems with teacher absenteeism and non-functioning or "ghost" schools as compared to primary schools, the majority of government middle and secondary schools fail to provide students with quality education, especially in rural areas. Reform initiatives at the middle and secondary level have mostly focused on demand-side interventions, such as stipends for female students[16].

Pakistan's National Education Policy of 2009 describes secondary education as important in two respects: It provides labor market skills for the many young people who leave school at this time, and it prepares those students who continue their education for the tertiary level. The 2009 Policy also describes two main shortcomings of secondary education in Pakistan: Skills are not well matched with labor market needs, and too few students transition to middle and secondary school. Pakistan's national average ratio of transition to secondary from primary school is 1:6 but, in certain parts of the country, it reaches the high figure of 1:13[17].

These figures are reflected in net and gross enrollment rates. Pakistan had a net enrollment rate for middle level (lower secondary) education of 18 percent in 2006-07, and 10 percent for secondary school[18]. A large number of over-age children are enrolled at the middle and secondary levels, accounting for a much higher net-gross enrollment rate gap – for example, 54 percent for the middle level in 2008-09[19].

Overview of Pakistan's education structure

Pakistan is a parliamentary democracy with a federal government, four provinces, Federally Administered Tribal Areas (FATA), Northern Areas (FANA) and Islamabad Capital Territory (ICT). There is a three-tier system of education - federal, provincial and district. The division of responsibilities

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[12] A more comprehensive review of Pakistan's education sector appears in *Appendix 7*.
[13] Kazmi, S.W., "Role of Education in Globalization: A Case for Pakistan," 2005. Hereafter cited as "Kazmi 2005"; and Shah, D., "Monitoring the Quality of Secondary Education in the Context of Decentralization in Pakistan," 2009. Hereafter cited as "Shah 2009"
[14] UNESCO, "Why Gender Equality in Basic Education in Pakistan?" 2010. Hereafter cited as "UNESCO 2010"
[15] Sayed, T., "Secondary education in Pakistan: The key issues, challenges, and reform framework," 2006. Hereafter cited as "Sayed 2006"
[16] Sayed 2006
[17] Ministry of Education, Government of Pakistan, "National Education Policy 2009."
[18] Pakistan Bureau of Statistics, "Pakistan Social and Living Standards Measurement 2007." Hereafter cited as "PSLSM 2007"
[19] Pakistan Bureau of Statistics, "Pakistan Social and Living Standards Measurement 2010"

of the federation and provinces has been defined by the Constitution of the country. The federal Ministry of Education was largely devolved to the provinces in 2010, but a federal Ministry for Education and Training (formerly the ministry for professional and technical training) oversees higher education, technical education, primary and secondary education at the federal level (ICT, AJK, FANA, and FATA) and adult literacy. All provinces have Departments of Education headed by the Provincial Ministers of Education. The provinces are furthered divided into districts.

The government maintains a system of segregated schools for boys and girls, although schools are allowed to enroll students of the opposite sex. Pakistan also has 23 Exam Boards, most currently operating at the provincial level. Students take national level exams from the 9th grade onward. The exams are based upon government curriculum that is printed in English in limited quantities at the federal level, and for the most part is used by textbook writers, not by teachers. In urban areas intense competition exists over exam scores. An informal system of paying for exam results has been widely reported in the media, and changes to the exam board system thus involve myriad vested interests.

Parallel systems of education, such as private schools, also have a strong presence in Pakistan and are more likely to use English as a medium of instruction. English is the language of elites in power, although only two percent of Pakistanis are competent in English and up to 18 percent may have some knowledge of it[20]. About two-thirds of middle school students (5.6 million) attended public (government) schools in 2010-2011, of which the majority (57 percent) was boys[21].

Overview of middle and secondary teachers

Government teachers are moderately well paid within the context of Pakistan and generally earn more than private teachers.[22] Strong teacher unions are often linked to political parties, with teachers entitled to a significant amount of official leave time (often three months of summer leave, 15 days winter leave, 24 casual-day leave annually, 16 national holidays, etc.), which enables male teachers, in particular, to hold additional jobs (agricultural workers, shopkeepers, etc.). The majority of middle and secondary teaching positions are held by women, although the percentage of women teachers is relatively low in rural areas and in particular provinces and regions (Pakistan Education Statistics, 2010-2011).

While Pakistan has some very good government schools, particularly at the middle and secondary levels, and sometimes families switch their children from private to government schools in order to prepare them for Board Exams, in general, the public perception of government schools – and by extension teachers – is unfavorable, as evidenced in popular jokes and expressions. Government schools are colloquially known in Urdu as "*koti*" (donkey) or yellow schools. Although teacher absenteeism at the middle and secondary level is low according to official statistics, in practice teacher absence during the teaching day is widespread, particularly in certain provinces, districts, and among sub-groups of teachers. This partially accounts for the fact that teaching positions are highly competitive, although government schools and teaches are generally held in low esteem.

One observer has noted, "Pakistan has witnessed a mushrooming of private provision in the past two decades. Coupled with these is empirical support from various studies that private school pupils often perform better in tests of academic achievement and that graduates of private schools have better labour market outcomes compared with government school counterparts." [23]

[20] UNESCO, "Multilingual Education," 2011.
[21] NEMIS, "Pakistan Education Statistics: 2010-2011." Hereafter cited as "NEMIS 2011"
[22] A secondary teacher of grade 14 to 18 receives Rs. 22,000 to 35,000 monthly.
[23] Aslam, 2009.

Pakistan is in the process of adopting the National Council for Accreditation of Teacher Education (NCATE) standards, and provinces are in the process of adopting different policy guidelines and regulations around the degree requirements for teachers. Teacher capacity at all levels of education is a significant challenge, due in part to historical practices of political influence in the selection of teachers, past policies regarding the degree and training requirements for teachers, and informal but systematic practices such as the "buying" of degrees in certain provinces, and informal short-cuts in attaining degrees (i.e., appearing for board examinations without having attending courses but being officially enrolled at the college or university level).

Background of USAID and Other Donor Support in Pakistan

Major USAID-supported projects in Pakistan have included the Education Sector Reform Assistance (ESRA) Program, begun in 2003, which was aimed at the primary school level. USAID also has funded the five-year Pre-Service Teacher Education (Pre-STEP) Program, launched in 2009, and the Sindh Education Sector Project (2009-2012). Other major donors that are working on teacher education and educational policy reform include DfID and AusAid (Operational Plan, 2011-2015) in the Punjab and Khyber Pakhtunkhwa (KPK); the World Bank, which has also supported the Sindh Education Sector Project and the Northern Areas Education Project; and UNICEF and UNESCO. A 2009 Pakistan Education Task Force, co-chaired by the British education reform expert Michael Barber, worked on developing an "implementation scorecard" and an innovation fund to support key development strands in the 2009 National Education Policy[24]. Despite all of this, donor efforts to support education change are challenging. Indicative of this is the fact that the Pakistani government currently spends only about 2 percent of GNP on education (i.e., 9.9 percent of government spending). It is being urged to increase this amount to be in line with the National Education Policy of 2009[25].

Overall Conclusions Regarding the Education Sector

In summary, key issues of particular relevance to ED-LINKS and this evaluation include:

- Pakistan's national policies place high priority on education that are not met with requisite human, material or financial support resulting in the nation being ranked among the lowest in Asia on most education indicators; Pakistan currently spends only 2% of GNP on education—less than 10% of all government spending.
- The majority of government middle and secondary schools fail to provide students with quality education, especially in rural areas.
- While government teachers are moderately well paid within the context of Pakistan, and the majority of middle and secondary teaching positions are held by women, strong teacher unions are often linked to political parties, political influence and informal systems tend to dominate in the selection of teachers.
- Major donor supported assistance to the education sector over many years has yielded disappointing results.

[24] Barber, S. M., "Education in Pakistan: This time it's going to be different," 2010
[25] UNESCO 2010

FIRST OBJECTIVE: STUDENT LEARNING AND THE LEARNING ENVIRONMENT

***IR 3.1*: *Improved student learning and the learning environment* through developing systems for gauging student learning and achievement, strengthening of assessment, and providing learning tools and classroom inputs aimed at improving student achievement** [26]

To meet its first of three objectives, one geared specifically to improving student learning and the learning environment, ED-LINKS planned, carried out and reported on a number of different activities. Its close-out report for the implementation of core activities in Sindh, Balochistan and ICT specified project achievements against 21 indicators for this objective, while the project's final report for FATA tracked the FATA PMP's nine relevant indicators.

Specifically, ED-LINKS planned activities in four different arenas related to the student learning objective:

> 1) The project would *improve the learning environment* through a number of different activities that included providing computer labs and science labs to schools; math and science kits to classrooms; and five-day residential "EXCEL camps" for students and teachers that focused on science, math and English. ED-LINKS would develop and provide educational software in math, English and science, and it would support a student exchange program for young people to visit the United States for about two weeks.
>
> 2) ED-LINKS planned *to improve classroom instruction* by such mechanisms as providing materials to teachers to deepen their understanding of the subject they taught, whether that was science, English, math or IT, and helping science teachers learn to develop teaching aids at little or no cost.
>
> 3) It would address *student assessment* issues by various activities including supporting the development of formative student assessment systems for teachers to use in the classroom, helping District Exam Boards and the Inter-Board Committee of Chairpersons in each province to develop standards-referenced exams, and helping district education offices and others develop the capacity to develop, mark and analyze the standards-referenced summative tests.
>
> 4) Finally, ED-LINKS would *increase the use of classroom materials and equipment* in different ways, including training teachers in the use of the science labs and supporting them to help students develop science projects through such an entity as a science club. [27]

Below is an assessment of key activities in each of the four arenas that ED-LINKS expected would contribute to the project's achievement of the first objective.

IR 3.1.1 Improved student learning and the learning environment

ED-LINKS' myriad means of improving the classroom and school learning environment produced mixed results. Computer and science lab installation in schools, the enhancement of existing science room facilities, the provision of math and science kits to schools, and the development of educational software for math, science and English for students to use in computer labs – all illustrate this point.

As a backdrop to this review, a comparison of individual activity targets toward the beginning of the project and then toward its end, often shows major reductions. It is not clear what proportion of these reductions may be attributed directly to funding cuts and what proportion may have been realistic adjustments based on low achievement at the time, for any reason. [28]

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[26] An even more detailed assessment of the objective related to student learning and the learning environment than what is presented here can be found in Appendix 4.
[27] AIR, "ED-LINKS – Core Sindh and Balochistan Final PMP and Achievements (as per close-out report), 2010, pp. 1-10.
[28] See Appendix 4 for a detailed summary of illustrative target reductions.

Science and computer labs (IR 3.1.1.4 and 3.1.1.5)

Findings: The computer labs (68) and science labs (41) installed were often used, but sometimes not used at all. On the positive side it seems that computer and science labs were clearly valued in many of the places where they were up and running and that they were perceived as adding appreciable value to the school. In Balochistan, evaluation team members were able to take a picture of several students sitting in their school's science lab (right), surrounded by beakers, scales and petri dishes.

Government Boys High School Cantt, Loralai District, Balochistan

On the negative side, the evaluation team members who visited Balochistan found a computer lab that had never been operational, sitting safely in the best classroom in the school, well protected from dust by its original plastic wrapping. In the district of Awaran, the field team visited four computer labs, and found two not functioning. Several people observed that the computer lab at their school also was not in service. Said one student, "There [aren't] any computer teachers in our school [and] that [is] why we cannot use [the] computer lab." Reported one individual, "…load shedding is a problem, computers are not charged properly and we cannot use them." There were accounts of schools that did not use the lab because the machines were considered too valuable or too expensive to repair.

As for science labs, one student interviewed mentioned an unused lab that was stored – permanently – in a large cupboard at the school. In Balochistan, the field team visited eight schools in four districts and found material generally kept in a small area, instead of being set up as science labs. At one facility only 10-15 items were kept in a cupboard. In Sindh, the field team visited a school were science tools were kept permanently locked in a small three-by-four foot cabinet. Some labs may not have been used because they had been delivered with only a limited amount of consumable material. Some teachers may not have used the science lab for fear of being charged for consumables or for any breakage of equipment.

Conclusion: It appears that ED-LINKS did not always fully consider the fundamentals that needed to be in place to maximize the usefulness of a computer or science lab – the reality of teacher transfers and attrition, the challenge of reliable access to electricity, the prevailing mindset regarding repair of equipment or replacement of materials. Regarding the report that there was no teacher trained to teach students how to use computers, it is possible either that no teacher in the school had been fully trained in IT and computer operations or that the teacher who had been trained had moved on since ED-LINKS ended its work at the school. Given that in 2008 the project had undertaken a comprehensive exercise to assess ED-LINKS school facilities – including developing a scorecard for each school regarding computer lab, science lab, and broader infrastructure and human resource issues – it is difficult to understand why the project installed labs in facilities that simply were not prepared to make the best use of them.

It must be noted that because ED-LINKS was not able to provide the 400 computer labs initially envisioned, USAID lost credibility in the eyes of those in at least some communities, potentially negating in those places the good will that the labs usually would engender. In ICT, for example, two computer labs for each sector had been promised to secondary schools and the schools had been selected, but the computer labs had never been delivered due to modifications to this target. The reduction in the number of labs provided created suspicion. For example, in Pishin District, residents said 11 computer labs had been promised, but only three were provided. Community members were disappointed, and the field team found several teachers and community members used conspiracy theories to explain why

the promised labs were not delivered (i.e., that "USAID people" had taken the labs because "USAID" was written on the packing material, not "ED-LINKS").

Science and math kits (IR 3.1.1.7)

Findings: In field interviews teachers and Master Trainers did not often mention the science and math kits that the project provided. ED-LINKS' own evaluation report about these kits indicates that of the 274 teachers in Balochistan, Sindh and FATA who were interviewed for the study, nearly all had access to the kits and between about half and two-thirds of the teachers used the kits once a week. [29] According to this report, teachers agreed or strongly agreed that the kits were "helpful in clarifying the concepts easily, developing students' conceptual understanding of the topics, and using variety of instructional activities as well as that the kits allow students to learn by doing, motivate them to ask more questions, and make the lesson interesting for the students." At the same time, about half the teachers reported that they did not understand how to use some of the kit items. ED-LINKS attributed this to the fact that kit training had been embedded as a one-day element in ED-LINKS' regular teacher training program and had not been the focus of a longer independent training workshop. About a third of the teachers also noted that having only one of each item in a kit was sometimes insufficient. [30]

Conclusion: Math and science kits appear to have added a useful dimension to teaching when teachers used them. More orientation to the kits would have been useful. Some teachers reported to this evaluation team that their head teachers did not allow them to use the kits because of fear that auditors might hold the head teacher accountable for any lost or worn-out items. Thus as in the case of the labs, it would have been beneficial to the learning environment that ED-LINKS was trying to enhance if the project had actively supported schools having and communicating clear policies for teachers and their supervisors about the expected use of materials and where responsibility for equipment maintenance and replacement of consumables lay.

Student Exchange Program (IR 3.1.1.8)

Findings: ED-LINKS sent 103 students to the United States for two weeks of orientation to instructional technology within U.S. schools. These visits provided much more: a chance for young people in their formative years to gain a close-up view of education in the United States and, more broadly, the U.S. itself, and then share those views with others, once they had returned home. While one observer remarked that these exchanges would never change Pakistan's education system, no one thought that in future programming, such visits should be curtailed.

Conclusion: Although it was not within the purview of this evaluation to undertake a cost/benefit analysis of this student visitation program, these visits seem to have been an effective mechanism for promoting learning and cross-cultural understanding for many more than the number of students who actually traveled to the U.S.

EXCEL Camps (IR 3.1.1.9)

Findings: ED-LINKS sponsored residential five-day-long EXCEL camps that focused on math, science or English. EXCEL Camps were designed to help improve student learning environments in science, math, and English classrooms. Specific EXCEL Camp objectives were to:

- Promote teamwork among students and build confidence in learning
- Enhance students' conceptual understanding and creative thinking
- Orient students about emerging topics and latest developments in fields of science, math and English
- Encourage teachers to work collaboratively

[29] AIR, "Evaluation Report on EDLINKS Math and Science Kit[s]," September 28, 2011, pp. 9-10. Hereafter cited as "AIR Kits."
[30] AIR Kits, p. 11.

- Enhance teachers' understanding of the inquiry process and learning-by-doing

The evaluation team talked to three teachers out of 45 teachers who worked with students who attended EXCEL camps in Balochistan; these educators were positive about the camps. In Sindh, the team talked to one PITE government official who witnessed an EXCEL camp and reported that students and teachers were very happy and excited. For all participants, the EXCEL camps represented a chance to travel outside their districts, sometimes for the first time, and to enjoy hands-on experience that seemed to have deepened the appreciation of a subject.

Conclusion: Although EXCEL camps were small in number – 10 in Sindh, Balochistan and ICT– they did involve 896 students and 153 teachers combined. Their popularity among both students and teachers suggests that in future projects, the idea of such camps should be expanded. This conclusion is supported by the fact that EXCEL camps were able to generate government buy-in: District governments sponsored 15 camps in six districts of Sindh and Balochistan, with technical assistance from ED-LINKS.

Development of educational software for math, science, and English (IR 3.1.1.11)

Findings: The Teacher Resource Centre (TRC) developed educational software and user manuals to expand students' understanding of science, math and English. ED-LINKS anticipated that CDs could be used in computer labs and would provide a reliable foundation for learning subject basics. Three manuals and CDs were prepared for English, science and mathematics. From these, TRC planned to produce 750 copies of each of the three CDs and manuals for distribution to schools. This was never done because of project funding cuts.

Conclusion: This provides a stark case of the price in education that ED-LINKS and its student stakeholders paid when the project's focus broadened to include relief and rehabilitation programming using core activity funds.

IR 3.2.1 Improve classroom instruction

Supplemental learning materials (IR 3.1.2.1)

Findings: ED-LINKS sampled 280 teachers from 100 schools in Sindh and Balochistan to assess the usefulness and effectiveness of the project's subject-oriented materials in the areas of science, math, English and IT. These materials included sample lesson plans, examples of classroom activities and resources for the development of pedagogical skills. They were used in the project's core teacher training workshops. ED-LINKS' own assessment found that more than 95 percent of teachers interviewed spoke positively about the quality of these materials. The study reported, however, that "while a quarter of the teachers use the supplemental materials very frequently, the other quarter of the teachers does not use the materials as frequently as hoped." [31]

Feedback to this evaluation's team members was positive regarding the supplemental materials – one researcher reported that he had been told that deeper knowledge of subject matter may have mitigated the fear that some teachers have going into a classroom; such teachers "hid" behind rote learning to avoid being asked questions they could not answer. At the same time, several teachers interviewed indicated that the training workshops in which these materials were introduced were intense and over-programmed in light of the workshop's timeframe and the capacity of those participating in the event. Materials sometimes seemed too complicated and sophisticated. In addition, manuals to support applying training in the classroom that were to have been translated into a provincial language and sent home with participants did not always materialize.

[31] AIR, "Evaluation Report on ED-LINKS Supplemental Materials: English, Science, Maths, and IT," September 28, 2011, pp. 6-7.

Conclusion: In the final analysis, the subject-specific supplemental learning materials constituted a strong element in ED-LINKS' teacher training that could be integrated effectively with the introduction of new pedagogy in training workshops. Feedback regarding the scope of these materials and the pace of their presentation in teacher training, as well as lack of follow-through with the provision of manuals in a provincial language, suggests that ED-LINKS could have done more to maximize the usefulness of the supplemental materials by first, simplifying the training, and second, ensuring that user-friendly materials were available to guide teachers when they returned to their classrooms.

IR 3.1.3 Student assessment

Formative and summative assessment systems (IR 3.1.3.1-5)

Findings: ED-LINKS included in its basket of interventions intended to enhance student learning, activities for developing and piloting new formative and summative assessment tools. In Pakistan in 2007, ramping up assessment systems seemed an excellent way to help middle and secondary school teachers transition into using the new national curriculum that the Ministry of Education had adopted just a year earlier. According to the ED-LINKS vision, the generation and institutionalization of a well-articulated formative assessment system would provide teachers with continuous feedback about what students were actually learning so that they could customize their teaching to maximize student success.

In addition, formative assessment, with its Student Learning Objectives (SLOs), pacing guides, and lesson plans, could be used as a means for teachers to move beyond dependence on rote learning. The idea of using student assessment systems overlapped, to some extent, with another ED-LINKS initiative, the training of teachers to use student-oriented pedagogy, such as group learning, asking students questions, and inquiry-based use of the curriculum.

As for summative assessment and the creation of new annual end-of-year exams or matriculation tests geared to the 2006 curriculum, there were at least two important benefits to accrue from investing project funds in this technical activity. First, new summative assessment work would make it possible for district educators to begin to standardize testing across the same class in different schools, rather than continue a traditional practice of teachers developing their own tests for classes that are below the 9th grade level.

Second, and this was crucial, standardized, provincial Board Exams largely drive what teachers teach at the 9th grade and higher levels. Competition for top Board Examination marks is fierce, especially in urban areas, and head teachers and teachers – particularly at better government schools – tend to "teach to the test." ED-LINKS, in partnership with the Aga Khan University-Examination Board (AKU-EB) envisioned using student assessments to update the official Board Exams, which would change how, and what, teachers teach. The creation of District Exam Boards to work at the pre-9th grade level, and the holding of strategic workshops with provincial government officials and the Inter Board Committee of Chairmen (IBCC) to improve the 9th grade and higher exam system, was the strategy ED-LINKS planned to use for incorporating student assessment into the prevailing education process.

In adopting this strategy of including assessment in its change model, ED-LINKS was validating AKU-EB's working premise that the elements of the learning environment, learning materials, teacher training and assessment are inseparable and that any attempt to improve the learning environment can be successful only when all of these are addressed. [32] Within ED-LINKS, AKU-EB worked with Master Trainers and others in 22 districts across Sindh and Balochistan on standards-referenced classroom assessment and promotion exams. It supported teachers to develop and use classroom assessment with reference to the 2006 national curriculum. It provided in-school support to middle-school teachers of English, science

[32] Mustafa, Isbah, AKU-EB, "Close-out Report on Interventions in EDLINKS Project (Nov 2007 – Nov 2010)," p. 48. Hereafter cited as "AKU-EB Close-out."

and math in the use of standards-referenced classroom assessment for improving the learning environment. [33] This involved frequent use of open-ended questioning, the use of performance feedback that avoided personal evaluation, and the use of self and peer assessment by pupils to record personal progress. A plan to link SLOs to indicators and exam results was initially discussed by ED-LINKS and AKU-EB in several meetings in 2008. This never materialized, however, according to AKU staff.

AKU-EB reported in its close-out report in 2010 that head teachers in Balochistan had observed that in some classrooms, tasks to assess students' performance that had been developed in ED-LINKS workshops were being used. These involved asking students questions and having them work in groups. This pedagogical approach had apparently generated renewed interest in academics from students and a willingness on their part to share with their teacher and peers. On the negative side, teachers had found it difficult to complete the syllabus within the class time allowed and they had experienced that transfers diminish the critical mass and capacity for the use of assessment in a school. [34]

AKU-EB asserted that its own classroom observations during ED-LINKS implementation confirmed the use of assessment tasks in 341 schools in Balochistan and Sindh. AKU-EB found that nine out of 16 indicators of an improved learning environment had often increased from between 7 to 30 percent and that the questioning style of teachers had improved "radically." [35]

AKU-EB also worked to build the capacity of District Education Officers to improve the quality of middle school promotion exams. It worked with district education offices to ensure that District Examination Committees could anchor a promotion exam assessment and development process. In 2010 AKU-EB undertook a comparison of middle school promotion exam results of students in 2008 and 2010 in English, science and math in 14 districts of Sindh and Balochistan to gauge the impact of project activities on student performance. Because the exams of the two years had been marked differently, the 2008 exams were marked again using the marking system of 2010. In addition, school features such as gender of students, location of school, school level, school size, class size, and presence of a library and of a science lab were factored into the analysis. [36] In short AKU-EB undertook "Investigation in [the] link of promotion exam[s], classroom environment [connection of teaching with real life, questioning style of teacher, student involvement in class] and school and classroom characteristics…by correlating scores of students with learning environment in the class and some of the school demographics." [37] AKU-EB wrote in its close-out report:

> To gauge the impact of project activities on student performance the results of 18 schools in Sindh and 9 schools in Balochistan are used….These are the schools whose data of marking and remarking of 2008 exams and 2010 exam[s] were available. Taking [the] school as the unit of analysis the improvement is reported in 60% of the schools….6 out of 9 schools in Balochistan and 11 out of 18 in Sindh show improvement in overall student performance from 2008 to 2010. [38]

Conclusion: The use of formative and summative assessment is an important and probably sustainable achievement within Pakistan's context of slow-moving changes regarding such issues as curriculum development, the printing of textbooks, and exam systems based on textbooks. Textbooks that use the 2006 national curriculum still have not been printed, and Pakistan's provinces now must decide just what the curriculum is that they will use and in what language that curriculum will be taught. As these post-devolution decisions are made, provincial governments will have an opportunity to adopt assessment tools, methods and systems. If they decide to use assessment as a means to bring about long-term

[33] AKU-EB Close-out, pp. 2-4.
[34] AKU-EB Close-out, p. 6.
[35] AKU-EB Close-out, p. 11.
[36] AKU-EB Close-out, pp. 17-19.
[37] AKU-EB Close-out, pp. 19-20.
[38] AKU-EB Close-out, p. 29. The evaluation team did not have the raw data for this study so was unable to verify these results.

fundamental change in education, it will be important for them to develop ways to operationalize assessment that can be readily understood and used by most of the educators in the Pakistan school system.

IR 3.1.4 Use of classroom materials and equipment

Science clubs (IR 3.1.4.3)

Findings: ED-LINKS viewed the creation of science clubs as an effective way to re-enforce learning. The project was successful in helping to create 536 of these groups, nearly doubling its end-of-project target number of 300 clubs. The comments of people interviewed by the evaluation teams indicate that clubs were active at the time of project implementation, with members exploring a wide variety of science topics. In one case it appears that an educator even put to work a corollary project intervention of teaching how to create learning materials out of low-cost or even free materials.

Conclusion: It appears that science clubs were popular and a useful learning vehicle for students. Many clubs, however, have not proved sustainable.

Overall Conclusions Regarding Student Learning and the Learning Environment

Taken together, evidence regarding ED-LINKS' efforts to achieve its first objective involving improving the learning environment, improving classroom instruction, introducing student assessment, and increasing the use of classroom materials and equipment suggests wide-ranging results:

- On the infrastructure front, ED-LINKS did not always pay sufficient attention to the physical environment and access to utilities that its activities required, despite having gathered in 2008 the information needed for decisions related to such issues (science and computer labs).
- On the human resource side, the project did not always provide sufficient training to teachers who would be using project inputs (labs, science and math kits).
- ED-LINKS suffered from budget cuts that curtailed efforts to copy and distribute subject-specific software, despite the investment in its development.
- ED-LINKS ambitions regarding developing systems that could foster fundamental change in the middle and secondary school sector were unrealistic in their scope and pace, over-estimating the capacity and motivation of educators within the system to be able to apply new approaches in the classroom (formative and summative assessment).
- Attempts to increase the use of classroom materials and equipment were appropriate and creative, but all too often did not pay enough attention to the question of sustainability. At the same time, schools that did have the capacity, either in physical plant or teachers, to put labs and kits to full use, seem to have appreciated and valued these additions to the environment.
- Science clubs were not always sustained, yet students seem to have valued these, even when not continued.
- Student exchange programs and EXCEL camps were regarded highly, though neither was implemented at significant scale. Perhaps the software developed for these will contribute to future programming.
- Supplemental learning materials for teachers were often effectively integrated into training workshops—despite being sometimes overly ambitious and complicated—yet they lacked sufficient follow-through to maximize usefulness.

- Assessment of student learning, while not always structured around a realistic assessment of what was possible, showed promise, anchoring potential and fundamental change in the entire schooling system that is worthy of follow-up in subsequent education programming.

SECOND OBJECTIVE: TEACHER TRAINING AND SUPPORT

IR 3.2 Improved teacher education and professional development through providing institutional and academic support that is centered on student achievement and learning outcomes

Support for teachers was one of the major interventions within ED-LINKS, and was closely aligned with other interventions around student achievement, improved assessment of student learning, and improved use of EMIS data and educational management at the middle and secondary levels. Teacher-focused activities spanned multiple areas, and in the 2010 PMP included 15 indicators, of which the key ones are covered in detail below.

Overall, the ED-LINKS model with regard to teacher interventions used a cascade, capacity-building approach that drew upon an innovative training model pioneered by AKU-IED and attempted to align teacher training with improvements in the student performance assessment system and educational management at the provincial, district and school levels. The training model used a multi-dimensional approach: The preparation of Master Trainers (also called resource persons) who were carefully selected from PITEs, BoCs, elementary colleges, and schools and received instruction in subject-specific content areas, pedagogy, and mentorship; the use of Master Trainers to teach school-based teachers in schools, and the concurrent training of head teachers (also known as principals and headmasters) in principles of instructional leadership.

In about a third of intervention schools, both head teachers and teachers received training. This overlap appeared to amplify positive overall change in the school environment, although this finding was not systematically studied. In Sindh, 125 out of 330 ED-LINKS schools received both head teacher and teacher training, while in Balochistan the corresponding number 190 out of 285 and in FATA 97 out of 574. Head teacher training was not offered in ICT. Although head teacher training was not intended to completely overlap with teacher training, given ED-LINKS' 2010 target of training 574 head teachers and 5,071 teachers in almost 1,400 schools, the apparent success in combining these interventions suggests this model should be considered in the future.

ED-LINKS attempted to overcome weaknesses in previous teacher training initiatives by deliberately training government employees as Master Trainers in order to build system-level capacity and avoid "donor workshop syndrome." ED-LINKS also mixed content-specific training in science, math and English, with training in pedagogy and the use of a mentorship model. This broad in-service training model thus avoided over-emphasizing one type of training (i.e. pedagogy) at the expense of another, a frequent problem seen in teacher training programs in Pakistan, according to AKU staff and some researchers.[39] Because teacher capacity in Pakistan is generally so low, introducing new pedagogical techniques to teachers without content knowledge can be disastrous.

AKU also appeared to effectively use an "educative mentoring" model,[40] as opposed to a "feel good support" model , which combined standards-based, development-oriented mentoring in a culturally sensitive way with Pakistan's hierarchical, fairly rigid school culture and management oversight structure. An unexpected finding was that training ordinary teachers as mentors – a decision originally driven by lack of district and provincial level in-service staff – worked particularly well within a mentorship model.

The weakest part of ED-LINKS's support to teachers was the incorporation of student achievement data into assessment systems, and linkage of formative and summative assessments of teachers and of students to student exams. The decision not to print and distribute teacher in-service training material, which had been co-developed by AKU-IED and education government officials in the provinces, also was

[39] Ali, A., "Education- FATA's crying need," 2012. Hereafter cited as "Ali 2012"
[40] Shulman & Sato, 2006

a major weakness of the ED-LINKS intervention, although this decision was driven by USAID-approved modifications to the project.

IR 3.2.1: Improved teacher education and professional development

Findings: ED-LINKS appears to have met its target goal of providing in-service training to at least 5,000 middle and secondary school teachers. A total of 5,017 teachers were trained, with content-specific training provided to 1,284 math teachers, 1,390 science teachers, and 1,490 English teachers in all four provinces/regions. Teachers also received training in newer pedagogical methods, such as student-centered inquiry and collaborative group work. In some ways this represents a significant achievement, since little or no in-service training had previously been provided to middle and secondary teachers. In FATA, for example, ED-LINKS initiated the in-service training of female teachers.

The impact of teacher training on practice appears to differ by district and province/region. Based on field interviews with 88 teachers, 18 Master Trainers, and 8 students who directly or indirectly participated in ED-LINKS programs, ED-LINKS' training was considered of high quality. Master trainers estimated that 50 percent of teachers used the content, and teachers estimated that 70 percent of teachers used the content, particularly in adopting student group work, more interaction with students, and using books as a source of teaching.

According to a survey of teachers, overall, teachers overwhelmingly reported that they found ED-LINKS training useful in their classroom teaching, in gaining respect and opportunities as a professional, and in building better relationships with students. More than 50 percent strongly agreed that the training had been useful and had helped them build better relationships with students, which research has shown is strongly correlated with improved student academic learning outcomes.

Teachers reported more mixed results with respect to schools supporting new ideas and practices, and the sustainability of changes. About two thirds (70%) of teachers strongly agreed or somewhat agreed that their school was supportive of new ideas and practices. Similarly, two thirds of teachers (71%) reported their ED-LINKS training had had a sustainable impact upon their teaching practice. Still, the majority of teachers said their school supported changes to teaching practice, and that the changes they had made were sustainable. (See table below.)

Table 7: Teacher's' Responses to Survey Questions (N=86)

Statement	Strongly Agree	Somewhat Agree	No Opinion	Somewhat Disagree	Strongly Disagree
My experience as a participant in ED-LINKS' training helped me in my classroom teaching	58%	38%	2%	1%	
My experience as a participant in ED-LINKS training helped me develop better relationships with my students.	53%	42%	5%		
My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional	35%	59%	5%	1%	
Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training.	26%	34%	8%	21%	12%
I still use knowledge or tools in my classroom that I received during my ED-LINKS training.	36%	35%	10%	17%	1%

In Sukkur District in Sindh, the DEO reported that teacher behavior had been changed, and teachers are now following lesson plans, especially if the head teachers also received training, and received it ahead of the teachers.

"This was the first time trainings were conducted through practicums - otherwise in the past, trainings were mostly conducted through theory. The trainings were very clear to the Resource Persons (Master Trainers) and teachers. I can't say there was a big change, but there was a change. If you compare the schools, there is a difference. The teachers who went for training are more committed, and come on time with the right material. They are more professional.

In the southern, Baloch-dominated district of Awaran in Balochistan, 14 teachers who had received training from Master Trainers from PITE said they had not implemented any ED-LINKS training in their classrooms, because no education manager had traveled to their schools to monitor them, no Master Trainer had come to facilitate follow-up training, and they had received no instructions from the DEO's office. One teacher in Awaran said he had tried to change his teaching practice after an ED-LINKS workshop, but his head teacher had stopped him, saying "There is no need to test new methodologies as it will waste students' time." In FATA, a college principal estimated that 80 percent of her teachers had changed their practice following ED-LINKS training.

ED-LINKS' primary partner in designing and delivering in-service training, through the use of master teachers, was AKU-IED. SCSPEB in Balochistan and IRC in Sindh were the primary sub-partners who conducted teacher training.

The evaluators found that challenges around delivering in-service professional development included lack of a supportive and safe environment, especially for women, and other chronic problems that impacted the effectiveness quality of training. The matching of teachers with appreciate subject-specific training did not always occur (i.e., English teachers received mathematics training, etc.) Evaluators found this was a problem in Sindh, Balochistan, and FATA. IRC staff reported that many of the teachers they trained appeared to be primarily interested in receiving travel and daily allowances, rather than interested in improving their practice. Research in Pakistan on in-service training suggests this is a common challenge.[41]

Additionally, many participants complained that teachers were sometimes selected by EDOs, DEOs, ADOs, and DOs on the basis of personal connections and "favoritism" rather than need and merit. In FATA, an evaluator estimated 40 to 50 percent of teachers who attended ED-LINKS workshops were "favorites," and most had been selected for previous professional development opportunities two or three times. During a group discussion in Mohammad Agency, one male teacher said, "When a person goes two and three times and another person isn't called at all, the tension and jealousy builds. The person who isn't picked feels like, 'Why not me? It's my turn. You are going only for lunch'." A female teacher in

Confusion Surrounding Study Abroad Program

"Mohamed," 45, is a teacher selected as a possible TAP participant who did not make the final cut. Mohamed found the situation very confusing. According to Mohamed, ED-LINKS staff told him that he had been selected for a USAID exchange program and that he had to get a passport quickly. He paid extra money to get his passport and says, "I was very happy."

"But after a month, the ED-LINKS team again came and said, 'You can't go.' I asked, 'Why?' They said, "Because of your age." I had told the whole community I was going. That was a terrible condition for me and I can't forget…"

When a person from the Pakistani community goes abroad, he feels proud. When he can't go, he feels shame. To this day Mohamed remembers the shame and sorrow of the experience, despite his gratitude at having been able to attend an informative ED-LINKS sponsored workshop on science – his first professional development experience ever. Mohamed's message to USAID is, "Please do your homework." (See Story 1.)

[41] Ali 2012

Peshawar said, "When one teacher goes many times, it is useless and a waste of the resources. It's the right of the other teachers to go." The evaluator also found that sometimes teachers, especially female teachers, felt forced to go to trainings that were redundant, perhaps in part because education managers

> ***Female FATA Teacher Feels Pride after Participating in Study Abroad Program***
> *"Bibi" is a teacher who has become a role model in her village because she participated in the TAP program in the U.S. "I was very surprised the teachers (in the U.S) had a lot of stamina and dealt with students one by one. Now I am also trying to adopt that attitude with my students."*
>
> *The fact that Bibi was able to go alone to the U.S., without male accompaniment, represents a significant change in the attitudes of people in FATA. Now, girls who are as young as 15 or 16 years old are allowed to study abroad. When Bibi returned to Pakistan, many people from her village wanted to learn about her experiences. (See Story 2 in Appendix 12.)*

don't have the data to track trainings.

By contrast, except for some confusion surrounding the selection process, teacher participants appeared to be highly enthusiastic about their experience with the study abroad program. They reported large gains in knowledge and capacity development. ED-LINKS exceeded its target goal of sending 43 teachers to the U.S. for six weeks through the U.S.-based Teacher Attachment Program (TAP), with 48 teachers participating in the program and in two follow-up workshops. An ED-LINKS survey found that 85 percent of TAP participants used information they gained through their experience at least twice a week in the classroom. Evaluator interviews with TAP participants also suggest the TAP program resulted in improved classroom practices, although participants were not always able to institute wider changes within their schools due to lack of support from head teachers.

Conclusions: ED-LINKS provided in-service training for middle and secondary teachers in Sindh, Balochistan, and ICT in science, math, English, and learning technologies, and in newer, student-oriented pedagogy. A smaller number of teachers further increased their skills and knowledge through a teacher study abroad program that sent teachers to the U.S. An ED-LINKS impact study that included a Teacher Quality Index with data based on classroom observation noted overall positive changes as a result of in-service training. Follow up field visits, including information from surveys and interviews, found mixed results, with estimates of a 50 to 70 percent change in teachers' classroom practices despite chronic challenges such the selection process for teachers to be trained. Some progress was made in linking teacher training to the 2006 national curriculum and the use of formative assessment.

IR 3.2.2 Increases academic supervisors'/head teachers' ability to provide support to teachers in classrooms

Findings: ED-LINKS successfully built the capacity of school administrators and district education managers through its Education Leadership & Management (ELM) training, in terms of numbers of participants and in terms of effectiveness, according to available evidence.

In total 2,019 head teachers and education officials were trained in Sindh, Balochistan, ICT and FATA – 947 head teachers and education officials were trained in Sindh, Balochistan and ICT, and 1,072 (186 females and 886 males) head teachers and education officials were trained in FATA.[42] Males vastly outnumbered females in all provinces and regions, perhaps reflecting a gender imbalance in education management positions. The training consisted of 180 hours at the AKU-IED campus and 120 hours of field work. Participants learned how to develop school development plans (SDPs) and how to become change leaders and mentors to teachers in order to foster a more positive and learning-centered school

[42] According to the 2010 PMP, where program figures may overlap somewhat, a total of 2,508 participants were trained in two different sessions, including 574 head teachers from Sindh, Balochistan and ICT and 489 education officials and head teachers from FATA. ED-LINKS amended these numbers, as presented in the text, to improve accuracy.

culture, representing a shift from traditional Pakistani conceptions of the head teacher as primarily a supervisor and inspector.

An AKU-IED follow-up evaluation reported an increase in participants' effectiveness in schools. This included starting to hold regular staff meetings, and more success in mobilizing community resources in order to improve the physical infrastructure of schools. Evaluator interviews with participants also verified that head teachers and education managers made positive changes to their practice, although the degree of change and its sustainability appeared to depend upon particular school and community contexts. Some participants said the training at times didn't fit the context of Pakistan, and was too Western-oriented and implemented by people who may have lived abroad and were not sensitive to cultural norms. One man from FATA, for example, said he was asked to publicly speak about his family, which is against his values.

In Balochistan, high schools in four districts have developed and are using school development plans, according to the PITE director, who added that high schools throughout Balochistan are now expected to use school development plans as a result of ED-LINKS training. Schools are now in the phase of preparing plans, and the second phase will be to implement plans. One head teacher built eight restrooms and a classroom as a result of doing a school development plan. An evaluator believes this initiative will not be scaled up throughout Balochistan, however, unless schools receive a letter directly from the secretary of education. In FATA, two out of the more than 400 education leaders trained utilized training to generate money for the re-construction of schools, including a headmaster from Bajaur Agency. Despite the low number, the two headmasters are role models who represent an attitudinal change to "self-help" that ED-LINKS helped foster, an evaluator reported.

An unexpected finding is that training head teachers has a valued-added component, since EDOs/DEOs/DOs have high turnover (i.e., the evaluation team found appointments usually last less than four years). Education managers usually are drawn from the ranks of head teachers, who rise to their positions based on seniority and selection by elected officials. They generally have no special training in management before assuming their positions and are at the same grade level as head teachers.

Conclusion: ED-LINKS increased the capacity of school administrators and district education managers to provide support to teachers through acting as transformational change agents in schools. Follow up studies by AKU-IED and field visits by evaluators found evidence of positive changes in schools, such as the use of school development plans. (See Story 3 in Appendix 12 for an example.)

Education Manager Deals with Challenges

Dealing with unmotivated school principals is an on-going challenge for "Waheed," an EDO in Islamabad Capital Territory. Waheed oversees 79 principals in his sector, and people wait for days in order to meet with him.

After attending an education and leadership management course and EMIS training, Waheed decided to apply some of what he had learned in dealing with principals and used the motivational techniques to help principals improve the pass rates in their schools. He also encouraged principals to be open about what problems they were encountering. (See Story 3 for full story.)

IR 3.2.3 In-service training improved

Findings: The capacity of provinces and regions to provide in-service training was enhanced through the ED-LINKS project. ED-LINKS built capacity at the provincial and district level to conduct in-service teacher training by introducing the concept of in-service training in districts that didn't have in-service training, and by providing Master Trainers (resource persons) in provinces and districts where staff to do in-service training is lacking.

ED-LINKS largely met its target goal to train 380 Master Trainers in pedagogy, mentorship practices, and subject-specific content in mathematics, science and English. According to AKU-IED, 60 participants were trained in math, 182 in science, and 91 in English. In order to build government capacity and because Pakistan's provinces do not have adequate numbers of in-service trainers the PITE, BoC and elementary college level, participants were drawn from these institutions and from intervention schools.

While the capacity of Master Trainers was built, the follow-up use of Master Trainers by the education departments in Sindh, Balochistan, ICT and FATA varied, showing modest sustainability. In some cases, it appeared that even a single training by a Master Trainer was able to bring about significant change in beliefs and practices among teachers. (See *Appendix 12* for Story 4: Case study of a Master Trainer.") In other cases, Master Trainers appeared to have little impact even within their own school. A master English teacher in a school in Islamabad, for example, said as a junior teacher she was only able to tell colleagues about new content and pedagogy, and could not implement any changes. In Balochistan, by contract, the AUK-IED staff person who oversaw the Master Trainer program said junior teachers were able to implement sustainable changes in their schools, although follow-up is needed to verify whether changes have persisted since 2011. (See Story 5 in *Appendix 12* on junior teachers as change agents).

Case Study of a Master Trainer

"Rahim" is a high school teacher, who became a Master Trainer for ED-LINKS. He received training from the Agha Khan University Institute of Education Development and training in language skills in Hyderabad. Rahim was asked to hold training in Kandhkot, a remote district that was having problems with violence and tribal hostility.

Despite the teachers' initial lack of interest and participation in the training, he persisted with his lessons, and at the end of the week, the teachers were fully engaged in training and committed to using the newly learned techniques in their own classrooms. Although he has not had the opportunity to return to Kandhkot, many teachers have kept in touch with Rahim and continue to thank him for improving the perceptions of their profession. (See Story 4 for full story.)

Junior Teachers as Change Agents

In Balochistan, as in other provinces, female junior teachers usually hold the least influence in middle and secondary schools. Yet sometimes, such teachers make the most effective master teachers. They can be open to new ideas, energetic, and devoted to their teaching, since women have fewer options than men for secondary employment in Pakistan.

AKU-IED staff said they deliberately selected younger, junior, female teachers to participate in the Master Trainer program. The staff also avoided selecting teachers who were always chosen in order to give other teachers the opportunity. Although these junior teachers met challenges, they have found that through persistence, they are able to create change. (See Story 5 for full story.)

In Balochistan, the PITE is reportedly using and plans to print the 50,000 classroom lesson plans and modules for English, science and math developed as a part of ED-LINKS. ED-LINKS' Master Trainers are also reportedly being used to do in-service training in all 22 districts. A PITE official told an evaluator, "The modules are excellent, and will be a great help to the teachers." PITE feels a sense of ownership because they were involved in the process of developing the lesson plans and modules, the evaluator said.

The PITE official in Balochistan also said the addition of Master Trainers and resources has mobilized the organization, which previously had only two or three people doing professional development. According to the evaluator, "PITE officials said they were idle, doing nothing, before the ED-LINKS intervention. Now they feel like they are a living, working organization. PITE has less political influence - maybe 50 percent of employees are politically connected - because it is a more technical enterprise. If you are asked to join PITE, you are expected to do work and deliver lessons in front of many people. People usually want to go where there is no work."

The PITE in Sindh has also mobilized ED-LINKS Master Trainers to offer 10 days of training twice a year since 2011, using their own resources. This is a change from very little in-service training offered

previously, according to the evaluator. Previously, the PITE in Sindh had a budget for trainings, but very little capacity. "They told us previously they had only had four to five resources persons, and they were insufficient and incapable and not well equipped with the latest knowledge. Now PITE has 252 Resource Persons (Master Trainers) who are working in their schools and colleges….so it is a great achievement and symbol of ownership in their department," said the evaluator, adding that PITE didn't know how much money would be allocated for next year.

In FATA, due to the closure of schools, a different in-service model was followed. A small number of Master Trainers were sent to AKU-IED. Those six to eight people then trained a larger number of Master Trainers at teacher colleges in FATA. Because of modifications to ED-LINKS' FATA budget, however, Master Trainers there never delivered in-service training at schools, which caused consternation for the education secretary and some head teachers. In FATA, a commitment that is made must be kept and breaking a verbal pledge is considered a serious offense, even in the context of emergencies, the evaluator said. One Master Trainer commented, "This thing confused us. We thought training would be a special experience. You committed, but you didn't follow through, so it is possible you are lying. You are making me a fool. If I knew you were going to change your plans, I would have changed my plans."

The use of school-based Master Trainers, when Master Trainers worked at schools as part of their practicum before re-grouping for a follow-up workshop, appeared to be particularly successful, AKU-IED staff said. In a school setting, mentorship models can be applied more effectively. Also, the use of teachers as Master Trainers, instead of only college staff, was particularly effective since hierarchical interactions are reduced and more collegial mentoring can occur. AKU-IED is now using this model as part of a Canadian International Development Agency-funded project in Sindh.

According to a survey administered by the evaluation team, Master Trainers almost unanimously reported that ED-LINKS training had been valuable (95%) and that it had helped them learn how to deliver in-service training programs and develop materials (40% strongly agreed, and 60% somewhat agreed).Although three-quarters (75%) of Master Trainers reported they had been able to mentor teachers, a quarter reported that they had not. Master trainers were evenly divided on the question of whether they had offered advice on teacher training at the school, district or provincial level. Half somewhat disagreed with the statement they had been able to offer advice as the results of training, but 40 percent strongly agreed with the statement. This suggests if the advice was accepted, there may have been a value-added component to master teacher training in the improvement of the education system. (See table below. Master trainers' responses to survey questions)

Table 8: Master Trainers' Responses to Survey Questions (N=28)

Statement	Strongly Agree	Somewhat Agree	No Opinion	Somewhat Disagree	Strongly Disagree
My experience as a participant in ED-LINKS' master training program helped me learn valuable new skills and knowledge	95%	5%			
I have been able to mentor teachers I trained.	45%	30%			25%
This program helped me learn how to deliver professional development programs, including developing teacher training manuals and creating course materials.	40%	60%			
As a result of this training, I have offered advice to education officials at the school, district, or provincial level on how to improve teacher training.	40%	10%		50%	

An unexpected finding was that training school-based Master Trainers may exacerbate the problem of teacher transfers, and thus the already unequal capacity of urban versus rural schools. In ICT, for example, an ADO reported that about 10 percent of science teachers and 50 to 60 percent of English and math teachers transferred to Islamabad within four years after their training, using their upgraded qualifications as justification for transfer. This had a negative impact on this ADO's sector, which contains 79 schools and already has a 30 percent teacher vacancy rate and a shortage of science and math teachers. As a result of ELM training and access to EMIS data as a result of ED-LINKS interventions, however, this same ADO reported he was able to make a data-informed request to the ICT education department for more teachers in specific subject areas.

Another unexpected finding was that provincial education officials, PITEs, and master teachers were receptive to the use of student assessment to improve teaching, especially at the pre-9th grade level, said AKU-EB staff. This was an unexpected finding because the exam system is highly politicized in Pakistan, with vested interests involving parents, teacher unions, education officials, and others.

As part of AKU-IED's effort to develop and improve in-service teacher training material and delivery, Master Trainers learned how to use Pakistan's 2006 standards-based curricula, which AKU translated from English to Urdu, and developed objectives. Teaching Master Trainers how to write objectives was a huge step forward, AKU staff said, since little progress has been made in this area in the past. Although the objectives were not linked to student assessments, progress was made in enabling such a linkage in the future by assessing teacher gaps in understanding the national curriculum, which is indirectly linked to student learning. Master trainers then developed 34 lesson instructional booklets, which the provinces now have in their possession and which can be used for future training.

Master trainers and head teachers were introduced to formative assessment in English, mathematics, and science in grades 6, 7, and 8. A follow-up study by AKU-IED found formative assessment being used in 341 schools, with a sample of 28 schools suggesting improved student overall performance in 15 schools. Formative assessment was also introduced to teachers in grades 9 and 10.

Originally, AKU-IED planned to link the development of in-service teacher training material to student learning outcomes (SLOs) in the 2006 national curriculum at all levels of the middle and secondary system. Although AKU (both IED and EB) in the end felt progress showed the most promise at the middle level, this is one of the three value-added components of ED-LINKS' work with teacher training, according to AKU-IED staff. The others were improvements in overall quality of in-service teaching and completely re-conceptualizing the mentorship model. Provincial education officials, who are now responsible for curriculum, have not indicated when and how the curriculum will be changed or updated. Meanwhile, testing systems and exams have started to change, although most of Pakistan's Exam Boards still design their tests using old curriculum from the 1990s.

Consequently, the ability of staff at PITEs, BoCs, elementary colleges, and school-based teachers to understand how to link both older and newer curricula to changing exam systems is more important than ever, according to AKU-IED staff. Reportedly, Master Trainers eagerly participated in this aspect of AKU-IED's training.

Conclusion: The capacity of provincial and regional governments to provide in-service training for middle and secondary teachers was enhanced, with evidence of sustainability in some areas, such as the development and use of Master Trainers and lesson instruction booklets. The fact that teacher professional development guides, developed together by AKU-IED and provinces, were never printed and disseminated hampered the sustainability of this initiative. In the future, further progress could be made in linking professional development to teacher career development, putting government systems in

place to provide in-service professional development, and systematically linking in-service professional development to student outcomes.

Gender-Related Challenges and Teacher Education

Gender is an important consideration in teacher training models, both in terms of the significance of women in the education teaching force, and in terms of accommodating the special challenges females face during the implementation of interventions. The ED-LINKS project dealt with gender-related issues most directly in implementing educator training, where both difficulties and successes emerged.[43]

Challenges

Gender-related challenges emerged to some extent in terms of who was chosen to participate in ED-LINKS projects and in maintaining the quality of training. For example, despite the fact that the majority of teachers in Pakistan's middle and secondary levels are female, and even come close to representing half the teaching force in places such as Sindh and Balochistan, ED-LINKS proportionately trained males as Master Trainers and as teachers (i.e., about two-thirds of participants were male) as part of its in-service intervention.[44] Males appeared to predominate both when careful selection filters were in place (i.e., AKU-IED's use of competency exams to select Master Trainer candidates), and when more ad hoc participant selection took place (i.e., the reliance on DO and headmaster references for selection of teacher training candidates). This could reflect gender selection bias, or family related cultural norms and pressures that make it difficult for women to participate in training due to expectations around home-based responsibilities, issues related to female travel and safety, and concern with mixed-gender settings and maintaining *purdah*.

Gender-related challenges were particularly reported by ED-LINKS participants in FATA and Balochistan. In FATA, a male Master Trainer said the greatest challenge he faced was that female teachers bring their children to the training. He called the ADO for the agency and pleaded, "Please don't let teachers come with their children," to no avail. In Pakistan, where most women live within extended families, mothers are primarily responsible for taking care of their children. Higher authorities within the extended family network (i.e., fathers, fathers-in-law, uncles) may require female teachers to take their youngest children with them to training, as well as a male escort from the family, according to ED-LINKS participants. Children can make it difficult for female teachers to pay attention during workshops, and can pose space issues.

In FATA, the initial teacher training session took 12 days. Female teachers arrived in four to five groups of about 40 teachers each at a teacher's college in Khyber Agency, where overcrowding due to children and male escorts was an issue. "Not a single (female) teacher came alone. Conditions for management were terrible," reported the head of the college. "There wasn't enough space. Not enough food. I was always receiving calls from the father-in-laws, 'Please don't allow my daughter to go outside' (the college). Their mind is very conservative. All the time they were calling. But Pakistani women are used to this type of pressure." The college head recommended that in the future, trainings should be held closer to home and not centralized for all seven FATA agencies. "It is disturbing for them, and for us." Additionally, the head of the college said many families in FATA did not allow women teachers to participate in the in-service training. She estimated that about 50 percent of the female teachers chosen to participate in in-service training in FATA faced a dilemma: Pressure from ADOs to participate in the training, and pressure from families not to participate. "I am in a miserable position," one female teacher reportedly told her.

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[43] Of 10 districts in Sindh and Balochistan with high gender disparities in literacy, ED-LINKS worked in two – Tharparkar (12 versus 44 percent) and Jacobabad (9 versus 50 percent) in Sindh. (PSLSM)

[44] As noted in the Gender analysis Section, women may be more difficult to recruit for training due to reasons unrelated to ED-LINKS.

Female teachers faced similar pressures in Balochistan, where reportedly many female teachers were not allowed to participate in training and pressures related to traveling children and male escorts impacted the quality of training for participating female teachers. In Loralai District, a female teacher who attended training on English teaching methodology faced death threats from her husband and in-laws when she returned home from training the first day (see Story 6 in *Appendix 12*).

> ***Attending Training Involves Risk for Women***
>
> *"Ms. Nazia" attended an ED-LINKS training session on English teaching methodology. After the first day, her husband and in-laws became angry because the training had both males and females present. They told her she could not attend training anymore but she asked to continue going, which was a courageous act.*
>
> *She persisted with training and has been able to implement it in her school. Eventually her in-laws stopped tormenting her about her decision. Ms. Nazia said that in the future, almost all females would be able to participate without problems. (See Story 6 for full story.)*

Successes

At the same time, evidence suggests that ED-LINKS interventions created opportunities for female teachers and head teachers to overcome gender barriers and assume more professional roles and advance in their careers. For example, a female teacher from FATA was able to attend the TAP program, despite her family's initial hesitations, as told in Story 7, *Appendix 12*. This marks an important achievement in Pakistan, where a continuing gender gap reflects life-long educational and career disadvantages for girls and women. In 2007 Pakistan ranked 99 out of 109 countries on the UNDP's gender empowerment measure (GEM), which measures whether women take an active part in economic and political life.

In FATA, some head teachers applied strategies they had learned from an education management and leadership course to initiate changes that led to better school environments. In Balochistan, female teachers in the districts of Pishin, Loralai, and Jaffarabad all reported that they were now comfortable mixing with male teachers, that they were confident as educators, and that they had gained more respect within their communities and had become female role models as a result of participating in ED-LINKS training. The teacher from Loralai whose life had initially been threatened, reported that after many months, her in-laws accepted her participation in the education arena, and that her experience had enabled other females in her village and nearby villages to consider teaching as a career. (See Story 8, *Appendix 12,* for a narrative about a female head teacher who benefits from Leadership and Management Training in dealing with gender-related challenges.)

> ***Overcoming Gender Barriers to Participate in TAP***
>
> *A young teacher from FATA applied to the TAP program, and when she found out she was accepted, she was both overjoyed and deeply sad. She did not believe she would be able to go, because her family would not support her. After much convincing, she got her sister and mother to support her desire to go to the U.S. Eventually her father agreed to let her go, and she traveled on an airplane for the first time.*
>
> *When she returned to Pakistan, her family and colleagues were eager to hear about her trip to the U.S. and everything she had learned. She was very proud that she was able to go on the study abroad program, even though her family abides by many religious and cultural boundaries. (See Story 7 for full story.)*

Overall Conclusions Regarding Teacher Training and Support

Taken together, evidence regarding ED-LINKS' efforts to achieve its second objective involving improving teacher education and professional development through providing institutional support centered on student achievement and learning outcomes, increasing the capacity of academic supervisors and head teachers to provide support to teachers, and improving in-service training capacity proved to be of uneven effectiveness although ED-LINKS did make progress in all areas, particularly with regards to providing training to teachers and increasing the previously almost non-existent capacity of provinces and regions to conduct in-service training. More specifically:

- ED-LINKS, through its partner AKU, introduced an effective model that includes content knowledge, student-centered pedagogical techniques, and an educative mentoring model that allows much greater scale up of delivery through the use of school-based teachers.
- The ED-LINKS model was further developed through the training of school head teachers as transformational leaders. Available evidence, although limited, suggests this intervention had the capacity to institute dramatic change in at least some schools.[45]
- ED-LINKS impact was limited by lack of printing and dissemination of teacher development materials and the decision not to employ Master Trainers in FATA, both in part the result of official modifications to ED-LINKS' original mandate.
- ED-LINKS' intention to provide professional development based on student achievement and learning outcomes was, in retrospect, perhaps overly ambitious.
- Although ED-LINKS made some progress in linking professional development to student achievement and learning outcomes, student achievement was difficult to verify, and establishing learning outcomes involved the buy-in of teachers, education officials and leaders, and textbook and exam boards, a feat that proved particularly difficult at the secondary and upper secondary level.

Difficulties Addressed by Management and Leadership Training

"Ms. Farah", is a head teacher at a Government Girls' High School Ms. Farah said that when she was promoted to head teacher, she felt confused about how she could she manage such a big institute, which has over 1,000 students. She had no experience or knowledge of management and administration. She attempted to promote a culture of teamwork and openness at her school, but senior teachers exploited the situation and Ms. Farah's trust and inexperience. Clerical staff also realized that Ms. Farah did not know even the basics of financial management, and they created many problems for her. Her husband became angry that she was spending so much time working.

Then, Ms. Farah had the opportunity to attend management training and decided to implement what she had learned. She created many positive changes in her school using her new techniques. (See Story 8 for full story.)

With specific regard to gender, when both challenges and achievements are considered there was room for improvement. In particular, the following recommendations emerge from the analysis:

- Carry out improved, systematic analysis and planning to address anticipated challenges.
- Make additional budget provisions for female training, particularly for accommodating children and male escorts.
- Make concerted efforts to engage the support of concerned communities, leaders, husbands and other male household members for women's participation.

[45] Evidence is limited, but what evidence there is suggests that some interventions were more effective than others and some interventions worked in some places, to some degree, while they did not work in other places. Institutional capacity building to provide teacher in-service training succeeded in part; it succeeded to some degree in some districts and schools, but not in others. The frequency of success, as measured by changes in practice, is impossible to verify.

THIRD OBJECTIVE: GOVERNANCE REFORM

IR 3.4 Governance reforms supported and public sector capacity strengthened at the federal, provincial and district levels to sustain quality teaching and learning

ED-LINKS aimed to strengthen institutional leadership and management capacity of the public education sector at the federal, provincial and district levels through separate yet related initiatives designed to capitalize on growing political will. These included providing IT resources and developing capacity to understand and access data, improving data collection techniques from the national to the school level, building capacity among district- and school-level leaders to manage budgets and educational plans, and strengthening provincial-level units to undertake education reform.

ED-LINKS began its work in governance at the national level, by creating a steering committee to identify common educational goals during its first year of operations. The steering committee was headed by the federal secretary of education and included provincial government education officials. According to the joint educational advisor from the federal Ministry of Education, the ED-LINKS development model was supported by all stakeholders, and it was hoped that ED-LINKS would build upon the Education Sector Reform Assistance (ESRA) Program in terms of achieving more sustainability and bringing in more experienced teacher subject specialists. While links to ESRA proved scarce, ED-LINKS' model of partnerships and government ownership at the provincial and district level enabled it to continue its work across multiple provinces and regions with little disruption after the 18th Amendment to the Constitution of 2010.

Generally, ED-LINKS concentrated activities at the district level, where most of the training took place in the area of data use, budgeting, and management skills. ED-LINKS appears to have had a moderately successful impact at this level, which is of crucial importance to the education sector given the legacy of policy changes dating back to 2001 and the general lack of capacity at the district education management level. (See the textbox below on district-level education leadership.) ED-LINKS achieved some sustainability of its initiatives through the decision of government departments to fund and take over some training programs.

AN OVERVIEW OF DISTRICT-LEVEL EDUCATION LEADERSHIP

At the district level, District Education Officers (DEOs), Agency Education Officers (ADOs) in FATA, are at the top of the education structure. DEOs are responsible for the monitoring and supervision of schools, coordination of the entire sub-sector of education, formulation of the district annual plan and its implementation, and collection and compilation of education data.

The District Education Department also monitors development projects, supports the strengthening of the Education Management Information System (EMIS), conducts standard examinations up to the middle level, and transfers teachers. Since 2010, departments no longer place or recruit teachers, which represents a significant loss in power. Their role in the identification and inclusion of projects to be financed in the Annual Development Plan is advisory, and the Secretary of Education decides what to fund.

The creation and abolishment of the teaching and non-teaching staff positions are with the provincial government. Therefore the district government is unable to meet the school's demand for additional teachers. As a result most schools in rural areas are under-staffed.

The DEO is assisted by the District Officers (DOs) (Elementary & Secondary), who supervise secondary schools. The main responsibilities of the District Education Officer and District Officer, beyond supervising secondary schools, are the monitoring and performance evaluation of the head teachers of secondary schools, planning and budgeting, conducting official inquiries against the teachers and head teachers of secondary schools, and coordination. DEOs are also assisted by the Deputy District Education Officers (DDEOs) and the Assistant Education Officers (AEOs). DDEOs monitor schools at the Tehsil level and AEOs monitor schools at the Markaz/Circle level. The Markaz/Circle is the lowest administrative level created for the monitoring of schools.

DEOs conduct surprise visits to schools to check teachers' absenteeism and students' attendance. An estimated 90 percent of DEOs lack computer skills, and each district has data management people (in DEMIS cells), with data concentrated on infrastructure, teacher experience, teacher pay scale, teacher performance, and student enrollment on a school or class level.

Most DEOs have masters' degrees and started their career as teachers, although more recently some are starting to be hired through competitive exams. Some have had management training from the Academy of Educational Planning and Management (AEPAM) and from other provincial training institutions. But education officials at the district level usually have risen through the ranks on the basis of seniority or political patronage, and usually have little or no formal training in management, so they have difficulty quantifying or prioritizing needs at their schools. This places them at a disadvantage in advocating for increased allocations to the education sector.

Although many powers and responsibilities of district-level education managers reverted to the provincial level after adoption of the 18th Amendment of 2010, in practice, district-level education managers continue to exert a strong influence over schools by virtue of their numbers, the structure of the education system, and the overall impact of devolution, which has shifted decision-making from a centralized system and created many gray areas not yet decided upon. Pakistan has undergone major changes in how the education sector is organized in the last 15 years. Pakistan's education sector can be categorized as having three phases of devolution: A pre-devolution phase (pre-2001), a devolution phase (2001-2010), and a post-devolution phase (2010-current). Each phase has greatly impacted education management, teaching, and student performance. (See Box 1 in *Appendix 10* for more information.)

Figure 3: Stages of Devolution in Pakistan

ED-LINKS interventions appear to have helped create some sustainable educational infrastructure improvements at the provincial level, but because of project modifications and perhaps lack of proactive planning (i.e., the creation of memorandums of understanding), governance change at this level has been less successful.

To some extent, ED-LINKS' work in governance was inevitably shaped by Pakistan's dynamic and evolving political context. Informal governance systems exert a powerful influence on the education sector, as well as on other sectors, in the form of school construction and land ownership, leadership at the provincial to school level, and hiring and supervision of teachers. While ED-LINKS' interventions were clearly valuable in facilitating a shift to transparent and accountable educational systems, room for creating more effective strategies around this issue clearly remains.

Efforts to strengthen Pakistan's Education Management Information System is an example of the opportunities and challenges ED-LINKS faced. ED-LINKS demonstrated that access to data can be a powerful means of resisting informal political systems, yet in collaborating closely with provincial and district education officials, ED-LINKS also skirted key leverage points where data could be used as a reform tool – such as linking exam data, exam assessments, teacher training, and education management tools. Governance, in this broad sense, involved a complicated set of entities and issues that were perhaps beyond the scope of work covered by project indicators in this area.

IR 3.4.1 Improved governance and strengthened public sector capacity in educational budgeting and administration at the federal, provincial and district levels to sustain quality education

Findings: ED-LINKS improved the public-sector capacity of provinces to sustain quality education to a limited degree. Progress was limited by factors such as lack of material and human capacity, frequent turn-over among government officials, uncertainty related to the Constitutional amendment of 2010, and ED-LINKS' strategic focus on the district level. The need to improve educational budgeting and administration is an on-going issue in Sindh and Balochistan, where large-scale external donors are both shaping and being shaped by new donor-coordination departments. ED-LINKS played a role in strengthening these departments to some extent. ED-LINKS also worked with the national EMIS (NEMIS) at the federal level, as part of its original plan.[46]

In Sindh, ED-LINKS helped support the newly established Reform Support Unit (RSU), which oversees some reform planning and donor initiatives. The Minister of Education in Sindh reported that while ED-LINKS initially could have provided more information about its progress and goals, it improved its communication after signing a Memorandum of Understanding (MOU) in 2008. The education minister recommended that future USAID programs should target a smaller number of schools and districts to serve as role models for education reform, although he was pleased with ED-LINKS' improvement of 330 schools in 11 districts in Sindh.

In Balochistan, the Provincial Programme Implementation Unit (PPIU) (originally EPPU) was established in April 2010 as a coordinating body, and started its work with Education for All (EFA) planning. ED-LINKS worked with setting the stage for the PPIU, but its exact role, in terms of institutional capacity building, is not clear. An evaluator found that ED-LINKS was not involved with the PPIU. ED-LINKS reported, however, that it had helped the provincial government to finalize the outlines of a third-generation EFA planning document, although it did not help write the actual plan. It also worked with EPPU staff in gathering stakeholders, holding workshops, and providing a forum for planning, attended by the Minister of Education, the Secretary of Education, and the head of EPPU. Over the years, ED-LINKS staff encountered the challenge of high turn-over among elected officials in Balochistan, with four to five Secretaries of Education over the project implementation period. In Balochistan, an Additional Secretary heads the PPIU.

Conclusion: ED-LINKS, especially after 2010, concentrated its governance reforms at the provincial and district levels. It helped strengthen provincial-level educational capacity in Sindh and Balochistan, especially through increasing the capacity of EMIS departments and the capacity of PITEs to undertake teacher in-service training. Little change occurred at the federal level.

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[46] The evaluation team acknowledges it was not able to interview all the key participants in the EMIS project design, and is presenting information based on interviews with AEPAM, NEMIS, provincial and district participants, and ED-LINKS staff. Although ED-LINKS worked with AEPAM, NEMIS and EMIS staff in the provinces to design EMIS training activities, low levels of staff capacity and familiarity with and access to hardware and technology at the provincial and district levels meant training needs were significant, especially in terms of sustained functioning of and use of equipment. While staff at AEPAM and NEMIS reported that ED-LINKS' training in EMIS within provinces was valuable and improved the capacity of education managers, ED-LINKS could have placed more emphasis on capacity development at a beginning (i.e., data awareness) level, and could have offered more informed, advanced technical assistance to AEPAM and NEMIS staff. ED-LINKS put too much emphasis on providing hardware.

IR 3.4.2 Educational Management and Information Systems (EMIS) data quality and accessibility improved

Findings: One of the key initiatives in the governance arena was building upon and strengthening the EMIS work begun under ESRA, the World Bank, and other initiatives. ED-LINKS implemented a three-phase program around its EMIS work: To 1) provide computers to provincial and district offices, 2) provide computer training to people who worked in EMIS cells and build capacity in parallel at the federal, provincial and district level, and 3) oversee and provide feedback on practical use of the training, such as verifying that school data were properly vetted and cleaned.

As part of this work, ED-LINKS trained 211 educational managers on using EMIS data for planning, management, monitoring, and supervision, and 1,720 education officials and school-based teachers in data collection to improve the quality and process of compiling Annual School Reports. According to ED-LINKS' follow-up surveys and evaluator interviews, the project had mixed success in building human capacity in this area because of low initial levels of capacity. Before ED-LINKS' intervention, few EDO and DO offices had networked computers, and few staff knew how to use email.

Evaluator interviews across ICT, Balochistan, Sindh, and FATA suggest that EMIS data are of mixed use to education officials, with some using it more than others within provinces and regions. Data utilization appears to be the most advanced in ICT, where ED-LINKS helped ICT government officials develop a financial scheme (PC-1) to establish an EMIS cell, which was approved. But even when EMIS data were not accessible, participants in the training reported that "sensitizing" participants to the existence and concept of data was an important step forward. Only 29 women participated in EMIS training, perhaps reflecting the reportedly relatively low number of women in education management positions.

ED-LINKS also worked closely with provinces to identify and address unique strengths and weaknesses of their EMIS operations. Because provinces had up to 15 departments within their EMIS units, training programs were tailored to fit unique departmental needs. Due to lack of qualified IT support staff, it is unclear how sustainable the provision of hardware and software will prove to be. Frequent changes to leadership and lack of electricity, a common problem throughout Pakistan, also impact the use of and usefulness of computer equipment.

In Balochistan, for example, the Director of Education heads the Balochistan EMIS (BEMIS), which was founded in 1990 and is responsible for EMIS cells at the district level. ED-LINKS built capacity starting in 2009 by creating a BEMIS office and providing computers to BEMIS, which did not have any computers at that time. ED-LINKS also assisted BEMIS to reactivate an Educational Geography Information System (EGIS), which had been installed by the World Bank in 1996 and became non-operational a year later. The EMIS system originally had a trained staff of 33 people to track 9,000 schools. ED-LINKS trained five or six people to operate the EGIS and BEMIS system, and BEMIS staff reported they plan to activate EMIS cells in nine additional districts. BEMIS officials said they also assigned the 33 staff trained by the World Bank, who had been idle, to work on the School Census Report as a result of ED-LINKS training. As a result, the government agreed to allocate Rs. 900,000 (~ US $100,000) in 2012-2013 to continue BEMIS's work, according to the Deputy Director of BEMIS.

Additionally, ED-LINKS provided 11 district offices with computers, installed 10 servers, and trained more than 13 EMIS officials in the use of software such as MS Access, MU project management, and SQL Server. Although no major policy changes occurred as a result of improvement to the BEMIS system and data at the district level are not yet digitized, significant capacity development occurred, especially in light of weak initial capacity and chronic, conflict-related insecurity.

The situation was similar in Sindh, where despite electricity problems, education managers reported EMIS data are so useful that managers desired training so that they would not have to rely on computer operators to use the computers and database software. Master Trainers and Subject Coordinators at

the PITE Nawabshah and BoC Jamshoro said computer equipment had enabled them to conduct research better and share ideas and subject matter with Master Trainers in Balochistan. District-level education managers said EMIS data saved them time, and the importance of EMIS offices had been boosted.

In Sukkur, the district education office hires daily wage contractors to maintain the IT system, since managers have found they are freed from having to spend "70 percent of their time" collecting estimates from head teachers, collecting information from subordinates, analyzing the information, consolidating it, and submitting it to the provincial secretariat. In Shikarpur, the government replaced two ED-LINKS computers stolen from the district office, an indication of ownership.

"EMIS is now the most important department in the education system," said the DEO EMIS in Sanghar. He added that EMIS cells should be developed at the *Taluka*, or sub-division level in Sindh. "Now everybody consults us before submission of any proposition."

ED-LINKS also supported the development of a *2010-11 District Education Profile* book, which was printed for the first time and distributed to district-level education managers, and the project supported the *Pakistan Education Statistics 2010-2011* report issued by NEMIS. These national level data also were improved and the process of data compilation speeded up through the Annual School Report data collection process. ED-LINKS achieved the synchronization of data indicators and codes across provinces and districts, built ownership through respecting provincial- and district-level protocols around data collection practices, and supported the inclusion of missing indicators (i.e., the number of disabled children in a school, child-friendly school features, the technical and professional qualification of teachers, etc.). This represented a key achievement because the 2010 Constitutional amendment gave provinces a greater-decision making role in data collection. New indicators did not include student performance assessments, a missed opportunity to build links within the education sector. (See the student assessment section for challenges around collecting student performance data.)

At the national level, ED-LINKS provided NEMIS with 30 - 40 computers and a lab, before its role was largely devolved to the provinces. A senior staff member said NEMIS helped build ED-LINKS' capacity, because ED-LINKS was better at hardware delivery than technical capacity-building at that time. ED-LINKS, however, provided effective training to provinces, which assisted NEMIS. NEMIS had been interested in linking its data to school assessment, but did not have the responsibility, the staff member said.

Conclusion: ED-LINKS contributed to the ability of federal institutions, provinces and districts to access and use EMIS data to improve management of schools. The use of computer equipment and data varied across provinces and districts, but indications of sustainable adaptation exist in some areas. Evidence also exists of the effectiveness of data-based decision-making within Pakistan's complex socio-political education environment.

Financial Management Training Pays Off for FATA Female Head Teacher

"Samina" is a head teacher at a girls' high school in Mohmand Agency. She says she has been able to improve the environment at her school after taking an ED-LINKS course on financial training, which enabled her to better control school finances.

Samina is from a Malik family, and says that she does not bow to unrealistic demands from the Maliks, She also does not compromise around issues of discipline in her school, whether she is dealing with students, teachers or staff. Her school's enrollment is now 1,200, a leap from just 400 in 2004. Samina attended ED-LINKS Leadership and Management training and EMIS courses where she learned new techniques including how to handle a crisis and solve problems using conflict resolution. She feels the training in financial management has had the most impact. She knows how to keep her financial records straight, is less dependent on office clerks and has more confidence. (See Story 13 for full story.)

IR 3.4.5 Increased management and budgeting capacity of education officials

Findings: ED-LINKS largely met its goal to train education officials in financial management practices, training more than 50 education managers and head teachers from Sindh, Balochistan, and FATA through its AEPAM sub-partner. Financial management is an important school-quality issue in Pakistan, where education managers and head teachers rise through the teacher ranks based on seniority, and few receive financial management training before assuming leadership responsibilities. As a result, school clerks in charge of bookkeeping can wield undue power in schools, depriving schools of much-needed funds through the confiscation and misreporting of fees and budget items, and undermining the leadership capabilities of education managers. Evaluators found during interviews that participants made significant changes to their practices as a result of this financial management training. In FATA, for example, one female head teacher confronted the clerk in her school, took over financial management, and improved the school for students and learning. (See Story 9 in *Appendix 12*.) After ED-LINKS training, another headmaster in Sindh realized that he could use funds to better the school environment. (See Story 10, *Appendix 12* **-** Case Study of a Headmaster).

Case Study of a Headmaster

"Mr. Keval Raam" found ED-LINKS Leadership and Management training helpful to his role as headmaster of a government boys' school. After receiving training, he created more activities to increase student attendance at his school. He purchased audiovisual equipment with school funds, screened inspirational movies and led motivational talks with the students. He also took movies and motivational talks to a secondary school in a remote part of the province, and student attendance improved from 50% to 90% in two months.

Mr. Raam was then transferred to the position of District Education Officer, which brought many new challenges as he now oversees more than 2,000 schools. He believes that those who receive ED-LINKS training should continue teaching for at least one year so that they can implement new techniques and teach others to sustain the positive changes.

An ED-LINKS staff member who conducted EMIS and other trainings said management and budgeting training was directed primary at the district level, where data decision-making concepts were less understood than at the provincial level, but better understood than they were at the school level.

Workshops were held in 2010-2011 and were of two types: One for planning and one for monitoring. In general, younger participants were enthusiastic about the training, older participants were not, and middle-age participants (40 to 50 years of age), who made up the majority of trainees, were split evenly as far as enthusiasm and wiliness to use the information. Knowledge gains were large in terms of understanding concepts, the ED-LINKS staff member said, because capacity in this area was under-developed (see Story 11 in *Appendix 12*).

The material developed for the workshops, such as the hefty 14-chapter *Financial Management Training for Education Managers* training manual, and a 122-page, CD-accompanied *Use of Data for Educational Planning and Management* training manual, appeared to be of mixed usefulness. Although thorough, the manuals could have incorporated a needs assessment to adapt material better to the special management issues faced by education managers and head teachers who may be working in conflict-afflicted areas (see Story 12 in *Appendix 12* on how a DO in Sindh mediates tribal conflict). Other participants told stories of adapting this new knowledge and using it to improve their schools and student learning. (See Story 13 on a FATA head teacher who stands up to a Malik and Story 14 about an EDO in ICT who uses EMIS

ED-LINKS changed teachers' "master-slave" mentality toward students

The principal of the female teacher training college felt ED-LINKS training had a big impact on her students. ED-LINKS helped to develop "realistic" material through a needs assessment, and as a result teachers were more receptive to making changes.

A total of 227 teachers were trained, and the principal estimated that the vast majority (80%) of teachers at her college changed their practice. "Before the workshop, teachers only gave lectures," the principal said. "The teachers felt like, 'I am the one full of knowledge,' like a master-and-slave attitude. The students are slaves and can't ask any questions. But after this training, the teachers understood that teaching should be a child-centered approach, and teaching is a two-way process…" (See Story 11.)

information to request more female teachers, in *Appendix 12*.)

A pre- and post-evaluation and feedback from training participants were positive, according to a senior staff member at NEMIS and AEPAM. An early needs assessment was useful and helped focus the training on the needs of female education managers to understand financial matters, he said. This project was successful enough that the government sponsored training for 900 female education officers from Balcohistan and Sindh, which began in July 2007 and lasted three years.

A second phase of the training project currently involves 800 male and female education officers from all over Pakistan. Besides further needs assessments, it would have been helpful to have further training manuals from ED-LINKS. Fifty *Financial Management Training for Education Managers* manuals were received, and 1,000 are needed, the staff member said. He also recommended that future trainings focus on empowering head teachers, whose roles are especially important after the 2010 Constitutional Amendment.

The ED-LINKS staff member said provinces had indicated they would continue the workshops, of which three each were held in Sindh and Balochistan, and two in FATA. Additionally, NEMIS, which has a three-year budget, indicated it would fund provincial- and district-level training and increase the number of participants.

Conclusion: ED-LINKS improved the management and budgeting capacity of education managers and head teachers across Sindh, Balochistan, and FATA. It also increased the capacity of AEPAM, through involving them in workshop delivery and material development, to undertake future trainings. ED-LINKS interventions attained some sustainability, in the form of NEMIS's continued funding and in continued training by AEPAM of government officials in financial management.

Overall Conclusions Regarding Governance Reform

ED-LINKS' third objective was ambitious. Although outputs were achieved, the implied overall outcome or strategy of creating a more seamless, data-driven and professional education management system, from the policy level to the school level, remains in question. More specifically:

- ED-LINKS' impact is difficult to verify due to circumstances such as devolution, evolving government officials, and the many other donors and initiatives with similar or cross-over projects, including the strengthening federal and provincial level public sector capacity in education.
- The sustainability of interventions based on functioning hardware, such as access to EMIS data in rural regions with little electricity or designated IT staff, is also uncertain.

Despite these challenges, ED-LINKS' efforts to achieve its third objective involving strengthening public sector capacity at the federal provincial and district levels, strengthening EMIS data quality and access to it, and strengthening the management and budgeting capacity of educational officials showed some evidence of progress. In many respects, ED-LINKS carried out its planned activities, including:

- Playing an important role in setting the stage for building upon increased capacity and increased awareness of the concept and importance of data, especially at the provincial, district and school level.
- Holding provincial level workshops to build capacity and help establishing planning departments
- Delivering computers and other hardware to enable better functioning of the EMIS system
- Delivering training to use and understand EMIS, and developing training manuals and holding trainings to improve the project and financial management skills of education and school leaders.

- Continuing, by the federal government, project management and financial training for education officials plus evidence that training has been put to us in at least some schools where school finances are now controlled by headmasters suggests that political pressures are being countered through access to data as a tool of influence.

BENEFICIARY PERCEPTIONS OF ED-LINKS

To collect insights regarding a wide range of issues pertinent to ED-LINKS, the evaluation team undertook approximately 180 face-to-face interviews with a non-random sample of students, teachers, Master Trainers and participants in EMIS and ELM training programs.[47] The results summarized here represent a variety of perspectives that inform the findings and conclusions of this report.

Student Perceptions of Changes in Teaching Styles and Public vs. Private Schools
Over a dozen students—individually and in two small groups—from Jaffarabad, Pishin, Nawabshah, Loralai, Shikar Pur, and Sukkur—were interviewed. In general, these students reported that teaching methods had changed for the better after the ED-LINKS intervention. As one student in 9th Class put it:

> *Yes, I have observed a big change in teaching methodology of my teacher. Before training he was very much like a dictator but after ED-LINKS training his attitude was changed and now he is like a friend of students. He always encourages us on asking questions; when I was in 7th class we were not allowed to ask too many questions. [Now] we share our problems with our teacher and [he] always supports us in this respect.*

Other comments also indicated that in a number of schools, teachers were exploring new teaching methods and engaging students more actively than before ED-LINKS training. Similarly, when asked to compare the atmosphere at public and private schools, most students took a surprising degree of pride in their government schools, especially in cases where they had access to computers. Nevertheless, some felt that private schools had a higher standard of teaching than did government schools, although it appears that ED-LINKS' activities had helped close the gap. (See *Appendix 11* for students' reflections regarding private vs. public schools.)

Student Reported Use of Computers
Among the students interviewed in six schools, the majority reported that they had functional computer labs, which were very popular, although these were not always available to students due to load shedding or because of the lack of a teacher. Due to ED-LINKS, some felt that access to computers was higher in public than in private schools. Enthusiasm for computer studies was high with students who had received training; in one case it was reported that a student had stepped in to teach when a teacher was not available. In a few cases it seems that computers had remained in their original packaging and were not available to students either because of severe load shedding or because of lack of a secure, weatherproof classroom in which to house the equipment.

Teachers' Perceptions of the Value of ED-LINKS Training
ED-LINKS seems to have had a positive impact on attitudes and classroom practices for many teachers. Interviews conducted with 27 ED-LINKS-trained teachers in Mohmand, Khyber, Bajoor, Jamrod, Arwan in Peshawar, KP, and Loralai, Sikarpur, Sanghar, Mir Pur Khas, and Arawan in Balochistan indicated general satisfaction with ED-LINKS training.

Teachers were asked to score their level of satisfaction or dissatisfaction with ED-LINKS training. The following table summarizes findings of a few representative questions asked of teachers. Responses suggest that while teachers felt that ED-LINKS helped them improve their teaching, their school

[47] For reasons of efficiency, the evaluators had to depend on ED-LINKS to provide lists of participant names. From these the team randomly selected those to be invited for interviews in the field. ED-LINKS staff facilitated the outreach to these individuals, which could have influenced what people wanted to say.

environment had not always been supportive and they have not always been able to apply their learning in the classroom.[48]

Did you find ED-LINKS helpful?						
Statement/Question	**Participant Group**	**Strongly Agree**	**Somewhat Agree**	**No Opinion**	**Somewhat Disagree**	**Strongly Disagree**
My experience as a participant in ED-LINKS' training helped me in my classroom teaching	Teachers: Roundtable	33	6			
	Teachers: Individual	17	7	1	2	
	Teachers: Group Response[49]		20			
Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training.	Teachers: Roundtable	17	17	2	1	2
	Teachers: Individual	5	12	5	5	
	Teachers: Group Response				12	8
I still use knowledge or tools in my classroom that I received during my ED-LINKS training.	Teachers: Roundtable	20	14	1	3	1
	Teachers: Individual	11	8	1	7	
	Teachers: Group Response		8	7	5	
TOTAL		**98**	**92**	**17**	**35**	**11**

Regarding ED-LINKS' usefulness and application in the classroom, special mention went to activity-based teaching, the introduction of participatory methods, and engagement with the community. Also highlighted were group discussion, group work and facilitation. One teacher from Peshawar summed up a key learning from his training:

> *I learned that when teacher, community and student made a triangle with their participation it formed an ideal school environment to learn. ED-LINKS fills the gap to complete this triangle.*

Said another:

> *[Now] I consider myself as facilitator instead of a head teacher or boss to other teachers. The friendly attitude with the students and selection of friendly monitors in the classrooms was good. So I think as a result I became more proactive rather than reactive with school environment.*

As indicated previously, ED-LINKS' teaching methods were not necessarily easy to implement. For some the ideas were not new, for others they were too ambitious for the realities of the classrooms in which teachers had to function.

[48] A full set of Likert Scale tables for all questions asked of teachers and Master Trainers appears in Appendix 5

[49] In some of the roundtables, the participants each answered the question and their responses were tallied, but in other groups, participants chose a single group answer for each question. These two styles of responding are represented separately in the table as "Roundtable" (tallies) and "Group Response" (single, group answer).

[There have been] many new things in my professional career but all were from my personal creativity and less was learnt from facilitators…."

…actually, there are 150 children to deal with, so it is very difficult to entertain all the children with this method…."

…I tried hard to implement, but due to the school environment I could not make any change.

In spite of challenges, one outcome of the ED-LINKS training was that it could bring enjoyment to a teacher's life. A teacher from Awaran says:

I used to enter in classroom with anger on my face but now I enter in my class with [a] smiling face.

Teachers' Suggested Improvements for Future ED-LINKS Training

The 27 teachers interviewed in Balochistan and KP were also asked for their ideas about how to make the ED-LINKS training even more effective and useful to teachers, and about anything they had found confusing or that had raised questions. Not surprisingly, the largest number of teachers called for additional training—especially for math—as well as for a longer training program, more time to digest the extensive material provided and shorter classroom days. Reflecting the value they placed on ED-LINKS training, several also suggested that it be expanded to cover additional subjects. Said one woman in Peshawar:

The most important topics, psycho social and students supports/ physical health topic should also be the part of this training next time….

Others questioned the sustainability of a program based on only a few weeks of training without provision for follow-up. One participant from Peshawar echoed the value of follow-up that was expressed by several others in Shikarpur, Awaran, Mohmand Agency and Sanghar:

After that good training, nobody from ED-LINKS visits the school to check about the problems [someone] is facing during teaching. No one check and ensure the proper implantation of training treatment….

Perhaps one of the most insightful suggestions regarding sustainability came from teachers in Loralai:

Ensure ownership of Government department in every step of the program, starting from designing of training to implementation. There was no follow-up by Education Managers.

Several teachers encouraged conducting training workshops in more locations, especially in FATA, so that training could take place nearer to their communities. This is an important consideration for women, who also noted difficulties they had faced with family members—especially in-laws and husbands—who had raised initial objections to both their participation in training and interaction with men. One concerned female teacher from Loralai shared her concerns and how she resolved them:

How I will speak in front of males? What will be the response of my in-laws and husband? This is not according to our culture. My in-laws took it negatively and they kept on teasing me for a very long period. For first two days I could not participate in training comfortably…but by the passage of time all my hesitations went away and I found a new girl inside me who was more confident. Now I easily participate in mixed trainings and I am not restrained by my in-laws as well.

Recognizing the difficulty they faced in bringing ED-LINKS training into their classrooms, 12 of 13 teachers in three roundtable sessions conducted in Awaran, Jaffarabad and Pishin concluded that they

could not use it. The Awaran teachers' analysis of implementation obstacles was particularly telling, shown in the following quotations:

> *Selection of teachers was not carried out on merit; [it was] without consultation of the head teacher.*
>
> *Head teachers did not always allow us to teach new things in our teaching.*
>
> *No follow-up visits to schools were made by any representative of ED-LINKS, R[esource] P[ersons] or any other department.*
>
> *Material required for low-cost teaching was provided in [the] last month of year 2010 and by that time the project had been wound up.*
>
> *Science clubs were not formed in any school.*
>
> *Computer labs [were] established in [only] two schools.*

One teacher reported that seven computers had been stolen from his school lab and now there was no lab facility in which a trained teacher could teach.

To make training more effective the Jaffarabad teachers recommended that there be continuity in the training programs and that there be workshops at least twice a year, followed by refresher training. Teachers in Pishin, especially women, viewed English training as important. Some teachers found that training sessions were dense, making it difficult to understand the substance of the training. Said one, "A few session in the training were so heavy for me that I could not understand even a single word."

Master Trainers' Perceptions of the Value of ED-LINKS Training

Master Trainers were key to ED-LINKS implementation. Details about the perceptions of 20 Master Trainers in four roundtable groups conducted in Jaffarabad, Quetta and Sukkur in Balochistan, and Nawab Shah in Sindh indicate a high degree of satisfaction with their own training and what they passed on to teachers. For example, one Master Trainer from Jaffarabad observed:

> *Yes, a big change happened in our approach towards teaching….The most important change…was the increase in confidence level….We became negative to positive. I became a very cheerful person….The same attitude transformed children…they also remain cheerful and happy during classroom. Now we discuss topics and don't pose anything on them. In past we were using 100 year-old method of assessment but [now] a very innovative method…that has shown very good result.*

Said another Master Trainer from Quetta:

> *Our approach shifted from rote learning to activity-based learning. Our attitude shifted from dictator to facilitator.*

Master Trainers' Suggested Improvements for Future ED-LINKS Training

The 20 Master Trainers interviewed through roundtable discussions in Balochistan and Sindh generally agreed that sustainability of the training was jeopardized by the lack of ownership by government. They noted that there was minimal to no coordination between provincial and local departments or agencies. Master Trainers suggested that IT support and training be strengthened when computers were installed in a school. They advised that the marking system be strengthened and that the examination and assessment system be reviewed and monitored, and that examination boards have training similar to that teachers received. They recommended that headmasters spend at least a year in the same position in order to implement the training they received.

EMIS Participants' Perceptions of the Value of ED-LINKS Training

EMIS training was an arena in which ED-LINKS seems to have been able to achieve a measure of sustainability through "buy-in" by national, provincial and district government institutions. The training was generally well-received and often used by education managers, some of whom were able to access supporting funding from the provincial government.

EMIS staff interviewed who received training found that it enabled them to better understand their government's education policy and learn important data management skills. They could use the data to monitor student enrollments, teaching staff numbers and attendance, facilities, equipment, budgets and expenditures. Due to pressures from local informal networks of influence, EMIS does not track student performance in the form of test scores. Nevertheless, education managers interviewed found EMIS valuable for management purposes and, in some cases, for accessing funds for new activities or facilities.

EMIS was not always seen through a positive lens, however, nor was it always used as planned, especially where expectations regarding access to electricity and/or support services were not realistic. Said one person interviewed:

> *Yes, to some extent we report the results of schools, but it never works…as there are lot of problems regarding compilation of data… Load-shedding, non-technical staff of computers and time management during routine activities were the major problems."*

EMIS Participants' Suggested Improvements for Future ED-LINKS Training

Participants suggested improvements to enable more widespread access and use of the EMIS. These suggestions reflected core issues plaguing the education system. Participants recommended, for example, that each officer from a school or at the district level have access to a computer and an operator and that they should be linked so that information sharing could be quick and efficient.

ELM Participants' Perceptions of the Value of ED-LINKS Training

Participants in the Educational Leadership and Management training programs often reported that their engagement proved useful and applicable to their work. They noted that ELM training helped them improve their professional attitudes, prepare plans, and apply management practices. One person reported that "We use our office computer more now," while another said that training had opened up a "new way of doing things."

ELM Participants' Suggested Improvements for Future ED-LINKS Training

General enthusiasm for ELM training was tempered with suggestions for improvement. These included selecting participants on merit, with pre-selection tests to be conducted, and training to be arranged at the district level, rather than in Karachi. Participants also recommended that training needs assessments be undertaken for all cadres before project launch and that there be separate training for males and females. They advocated that project funds not be shifted to other efforts and cautioned that whatever is promised must be implemented, observing that computer labs had been promised for nine schools, but only one lab had been provided. This, they said, "creates doubts." Finally they argued that more IT training should be added to the curriculum since it was "the most useful part we got."

Overall Conclusions from beneficiary perceptions

- Ownership and 'buy-in' from government was minimal to non-existent in many cases and seriously jeopardized sustainability.
- Interviewed students and teachers reported generally positive outcomes from ED-LINKS initiatives although some teachers faced obstacles that prevented their applying their learning.

- While there is wide variation in the quality of government schools, ED-LINKS appears to have improved the reputations and performance of some government schools, helping overcome general perceptions that private schools are generally better than government ones.
- Access to computers, where they were available and functioning, was widely appreciated, but the sustainability of these inputs was jeopardized by lack of IT support and operational/maintenance budgets.
- Teachers generally reported that ED-LINKS had been helpful and that they were still using the knowledge and tools received; they had come away with a more positive view of teaching and students than before ED-LINKS.
- There was minimal to no follow-up after training—a provision that would have greatly enhanced positive outcomes; promised materials were either provided very late or not at all.
- Follow-up workshops, mentoring, coaching from Master Trainers and provisions to ensure that there were a least two trained teachers from any school—so that they might support each other in applying lessons learned—would greatly have enhanced ED-LINKS outcomes.
- EMIS utilization and development would be limited unless each officer from a school or at the district level had access to a computer and an operator with links for information.
- Failure to provide expected inputs jeopardized both program success and perceptions regarding the reliability of the donor.

MANAGEMENT AND OVERSIGHT OF ED-LINKS

USAID asked that the evaluation team address three questions regarding management and oversight of ED-LINKS:

1) How effective was the ED-LINKS organizational and management structure in achieving results? How does the ED-LINKS structure maintain the quality of ED-LINKS work?
2) Is the ED-LINKS management team responsive and accountable to its key clients and partners: USAID Mission and host country partners (i.e., government and NGOs)?
3) Has the USAID Mission been effective in managing the ED-LINKS activity?

Effectiveness of ED-LINKS' organizational and management structure

Findings: ED-LINKS designed a decentralized management structure that entailed its setting up 37 offices across the project area, at both provincial and district sites. ED-LINKS' priority was not to build an office structure that was parallel to government's education offices, but rather to sit in those offices in order to maximize good communication and in the process of daily interaction, help strengthen the way EDOs and DOs did their jobs.

This model seemed to enhance ED-LINKS staff's access to information. Because of the project's decentralized system, staff reported that they could access first-hand information such as how teachers were performing in the schools, and the decentralized system made it easy to do classroom-based observations. When officials were asked to select teachers to participate in training, however, and to follow ED-LINKS guidelines when doing so, there was considerable feedback from those interviewed for this study that the process was not transparent, despite the fact that ED-LINKS staff felt their proximity helped ensure that appropriate selections were made.

One senior ED-LINKS management team member reported that if he had to design the management structure again, he would strengthen ED-LINKS' decentralized structure by placing the project's subject specialists in every district, instead of placing them at the provincial level. He argued that this would have make it possible for specialists readily to provide much-needed follow-up training to teachers and head teachers, thereby leveraging the trainings that were done, rather than depend on a single training or just a few interactions to provide the guidance that teachers needed. The entire training effort would have benefited, had district offices been provided with sufficient budget to cover transport for resource persons (70 in Sindh and 68 in Balochistan, for example) and Master Trainers (15 with the BoC in Sindh, for instance) to continue reaching out to the network of individuals that they had trained. This staff member argued that although this decentralized design would have meant expanding this technical segment of the staffing structure, incurred costs could have been offset by savings in travel costs. An additional benefit would have been increased monitoring and formative evaluation of project activities and operations.

In the governance realm, ED-LINKS worked to create a common set of educational goals in order to coordinate all governance activities by creating a steering committee during the project's first year of operations.[50] The steering committee was headed by the federal Secretary of Education and included provincial government education officials. According to the joint educational advisor from the federal Ministry of Education, the ED-LINKS development model and its decentralized structure was supported by all stakeholders, including the steering committee. With the adoption of the 18th Constitutional amendment, steering group members recognized new gray areas had emerged around curriculum, policy and planning which could adversely impact the ED-LINKS program. ED-LINKS' model of partnerships and government ownership at the provincial and district levels was considered a factor that could help mitigate any negative fallout from such developments.

[50] This is discussed in the report's Governance Reform section.

Conclusion: ED-LINKS' decision to decentralize its management structure had several advantages over the establishment of a highly centralized organization. The structure made it possible to liaise easily with government staff and gain knowledge informally that could facilitate project implementation. Even greater decentralization potentially could have provided broad benefits in terms of supporting the project's core teacher-training efforts and facilitating useful monitoring and formative assessment activities. The ED-LINKS steering committee was a successful mechanism for helping to troubleshoot high-level problems and challenges when they arose.

Management team responsiveness and accountability to key clients and partners

Findings: It is commonly acknowledged that ED-LINKS management was committed to working closely with the Government of Pakistan as it implemented project activities. After all, a core underpinning of the project was that it increased the government's capacity, whether through the training of teachers, head teachers, ADOs, DOs, EDOs, or supporting government to strengthen its capacity to set policy and improve its administration of public affairs. There was no better way for ED-LINKS to do that than to listen, learn, be responsive and subsequently accountable in its work at the federal, provincial and district levels.

ED-LINKS' decentralization of staff supported these objectives and the steering committee, in its semi-annual meetings, provided an opportunity for feedback to senior project managers about the project work that had been and would be undertaken. Discussions with a number of project stakeholders indicate that ED-LINKS senior managers, on the whole, enjoyed good relationships with the ED-LINKS decision-makers with whom they worked.

Relationships between ED-LINKS and its sub-contractors were sometimes more fraught. One partner considered ED-LINKS a "confused project." Another reported that it faced a "big problem" in working with ED-LINKS, that ED-LINKS was not responsive to its partners. The issues that implementers faced emanated largely from the fact that ED-LINKS was dependent on USAID to provide stability in funding and direction, but the Mission did not always offer that as political, social and environmental events in Pakistan changed. Reflecting on the Agency's rethinking of its own programming and allocations, moving to meet short-term demands at the expense of longer-term objectives, evaluating its own strategic focus, one partner observed:

> *...so what we found out was that all soft components and activities that have long-term impact were not something USAID was interested in investing in....USAID took the longest period on earth [deciding] what [its] strategic focus would be....* [51]

In short, ED-LINKS could not approve sub-contractor work plans or commit funds so that partners could get on with their work, if those funds were at risk of evaporating. The project could not make pivotal decisions on a timely basis because of the donor's own internal deliberations about program and budgeting issues. [52]

Once USAID decided, for the first time, to divert funds from the ED-LINKS budget, one partner reported that it consequently could not deliver what it had promised to its own stakeholders in the field.

> *We had promised that people be given software and other things. Then this problem of IDPs came, and funding moved, which didn't allow us to continue with our activities,*

[51] Executive Director, Teacher Resource Centre, Interview, Karachi, July 2, 2012.

[52] It should be noted that several partners interviewed for this evaluation found at least one ED-LINKS senior manager at times patronizing, arrogant or even dictatorial in his communications about project issues. They felt that ED-LINKS was not sufficiently respectful of the fact that partners, just like AIR itself, had much to offer and should be acknowledged as important contributors in their own right.

which we had promised. Then later we were told there were floods [that required more diversion of funds]. We thought we can't carry on like this. It affects our reputation. [53]

Conclusion: ED-LINKS' reputation regarding responsiveness to key stakeholders is mixed. At the government level, ED-LINKS generally was able to maintain positive relationships. On the NGO front, however, the scenario is less positive. ED-LINKS, like all of its stakeholders, paid a price for USAID's diversion of funds and its own need to be strategically and programmatically responsive to others. It is likely that this was an important contributing factor to what many have observed as diminishing enthusiasm for the project among an array of partners.

USAID's effectiveness in managing ED-LINKS

Findings: The environment in which USAID/Pakistan Mission staff functioned over much of the life of ED-LINKS was, by any standard, difficult. The Mission is a critical post dealing with core conflict and stabilization issues, while carrying responsibility for traditional development programming. As a result, staff must handle wide-ranging mandates and pressures while they bear responsibility for regular oversight of programs. Since ED-LINKS' early days, pressures were generated by Pakistan's political environment, encompassing internal insurgencies and regional conflicts; by national and regional security concerns, precluding free movement around the country; by Congressional mandates requiring immediate attention; by crises generated by conflict such as those of internally-displaced persons (IDPs); or by natural emergencies in the form of floods and earthquakes.

Given this ever-changing mosaic against which the oversight of development programming and USAID's investments had to take place – this "fast and furious" climate, as one observer described life at the Mission – it is not surprising that the Mission's management of ED-LINKS fell short of an ideal oversight model. In short, USAID management and support were marked by paying insufficient attention to such a major and innovative investment. This is somewhat understandable, however, since USAID management oversight was particularly affected by:

- Turnover and lack of continuity of AORs; USAID reported that ED-LINKS had six AORs and one Activity Manager between October 2007 and June 2010.
- Inability to travel freely in the field due to security concerns, and
- Attention-demanding distractions caused by floods, earthquakes, IDPs and political incidents.

On the programming front, USAID's decision to reprogram project funds as emergencies arose – in FATA, Malakand, Sindh and Balochistan – had an impact on ED-LINKS. In each instance the Mission needed to respond quickly to a political emergency or an environmental disaster and engaging ED-LINKS, both because of its substantial funding and because it was an implementer that was in place and willing to acquiesce to new requests from the Mission, provided a feasible way to implement a response. As USAID reallocated resources for each new activity and senior ED-LINKS staff turned attention to the planning and execution of each, this took its toll on the project. ED-LINKS staff concluded in the project's Core Program Final Report:

> The project targets and scope of activities were revised quite a number of times so that the budget could be made available to emerging needs such as support to IDP camps in FATA and Malakand, conflict-affected schools in Malakand and flood affected schools in Sindh and Balochistan. Responding to USAID's request to address urgent needs the project expanded its program to provide relief to schools and communities suffering from these calamities. While these changes helped ED-LINKS to be flexible with the project design and respond to urgent needs of

[53] Unaeza Ali, AKU-IED, Karachi, interview of July 2, 2012.

beneficiaries… at the same time the project has to re-appropriate funds to relief and rehabilitation work which impacted targets and activities under the core component. [54]

As noted previously, these major shifts over the life of the project contributed to erosion of the positive ties that ED-LINKS initially enjoyed with its implementing partners. As funds were cut, activity targets were reduced. In retrospect, it might have been advisable for ED-LINKS and USAID to consider the alternative of cutting activities from the project, rather than reducing targets for so many activities. By tying funding cuts to target reduction, ED-LINKS ended up not having resources to support teacher training in FATA that was to have been carried out by Master Trainers, print AKU-IED-generated teacher training materials that would have supported the investment in teacher training workshops, and produce and distribute TRC's math, science and English software, which would have justified the investment in the development of these materials.

As project funds were redirected, there seems to have been a shift in the attention that USAID gave to ED-LINKS. This seems a logical consequence of the project's need to focus on increasingly eclectic activities. One key informant observed:

> *USAID tried its best to support and work with ED-LINKS. We at one time were submitting weekly reports, and were very highly interactive, but the support was around what was happening at that time, to which was added so many emergencies.*[55]

Indeed, the correspondence between ED-LINKS and the Mission, particularly early in the project, was considerable. A review of the many documents related to planning (particularly PMPs and work plans), regular status reports, and general correspondence suggests that communication was not only frequent, but also substantive.

At the same time, another key informant suggested that USAID's monitoring and evaluation of ED-LINKS may have been light from project inception:

> *It's a C[ooperative] A[greement]. The AOR has substantial involvement and USAID's role is to approve key personnel and also the work plans annually – I believe [also] their performance monitoring and management plan, targets,…I don't think there was an annual review…from 2007 to 2009….[There wasn't a mid-term review.] As far as day-to-day management…we didn't have in place a robust M&E system.*[56] *I just got a sense that it was a stepchild project with many different fathers or mothers.*[57]

It should be noted that the level of USAID's oversight of ED-LINKS might fairly be viewed as a function of one operational challenge with which the Mission had to contend: the high turnover of Agreement Officer Representatives that resulted from the shorter-than-average tenure of AORs posted to the Mission (12 months in Pakistan rather than the customary 48 months in many other Missions). Indeed, as noted above, just within the little more than three-year period between 2007 and 2010, when ED-LINKS' implementation was at its height, multiple AORs and one Activity Manager were responsible for overseeing the management of the project.[58] The impact of this high turnover rate of overseers on ED-

[54] ED-LINKS, Final Report, p. 9.
[55] Ajmal Khan, Interview, June 29, 2012.
[56] It should be noted, however, that USAID was frequently involved in reviewing a series of Project Management and Performance plans (PMPs) governing core activities, with changing indicators (some added, some dropped, some reworded) and targets. A review of documents related to the work of the M&E unit of ED-LINKS suggests that project staff gave considerable time to plan revisions, in consultation with the AOR. See project quarterly reports, MSI Technical Advisor trip reports, and MSI's 2010 End of Program Report to USAID.
[57] USAID official, Interview, Islamabad, June 28, 2012. Note that other USAID officials understood that annual reviews were conducted before 2009, but reported that no records for a mid-term review or for SAPRs for earlier years could be located.
[58] Leadership in the Education Office and Contract Office were also plagued with turnover issues.

LINKS was exacerbated by the fact that AORs often carried heavy portfolios which sometimes needed to be shared out among staff. This further fragmented any continuity in oversight.

Overall Conclusions Regarding Management and Oversight

It would be gratifying if USAID staff had pursued development management as it should be pursued, with the commitment of time, discourse, debate, reflection and follow-through that such an important educational investment deserves. While the Mission did provide frequent input into the project's initial planning process, as reflected in PMP and work plan development activity, very real pressures on USAID/Pakistan made it nearly impossible for that to continue unabated for the full duration of the project:

- There were too many managers over the life of the project, with too many responsibilities, operating within an environment that was exceptionally demanding.
- There was inconsistent field oversight due to security concerns.
- Emergencies in Pakistan were disruptive and demanded significant attention.
- The diversion of funds added to an already complicated scenario.
- When cuts needed to be made, consideration should have been given to ED-LINKS cutting activities from the project, rather than reducing targets for so many activities.

EVALUATION OF ED-LINKS' "ULTIMATE LINK"

Improved Teaching and Increased Learning

Summary[59]

As the "Links to Learning" project name suggests, the myriad activities that ED-LINKS mounted to enhance the student learning environment, train teachers, and achieve governance reforms were all aimed at supporting one ultimate goal: improved student learning and performance. Students achieving higher test scores after experiencing a change in classroom teaching and benefitting from a school environment more conductive to learning than before ED-LINKS, could constitute premier evidence of the success of the project. [60] To measure and document improved student learning adequately, before field activities began ED-LINKS needed to establish a baseline of student achievement, grounded in test results,[61] against which any subsequent changes in test scores could be compared. For reasons that are explored below, the project never gathered these student achievement baseline data. Thus it is impossible to draw unequivocal conclusions about the impact of ED-LINKS interventions in the realm of "improved student learning."

Monitoring and evaluation of ED-LINKS activities proved challenging from the early days of the project and plagued it throughout its lifespan. This complex effort faced organizational, managerial, financial, and political challenges in abundance to draw stakeholders' attention in too many directions. Nonetheless, early in the project, PMPs and reports from various sources reflected awareness and consensus around the need to gather fundamental baseline data on teacher and student performance.

During pre-project planning, AIR selected Management Systems International, Inc. (MSI) to take responsibility for all M&E activities. MSI was active from the project launch in October 2007, until February 2010, when AIR ended its relationship with its sub-contractor. MSI's role in the story about baseline data is outlined below. In addition, ED-LINKS, and separately, the Aga Khan University's Examination Board tried to determine whether or not there was a link between teacher behavior and student learning; these efforts, too, are described below.

Early days and early indicators

Over the course of 27 months, numerous shifts occurred within the project itself and the environment in which it operated. These included a change in Chief of Party (CoP) within the first nine months of implementation; a project re-orientation in late 2008 to accommodate the new CoP's desire to realign activities; security issues in FATA that required data collection by FATA-based contractors; the addition of rapid response work related to internally displaced persons (IDP) camps in FATA in 2009; and beginning in the third quarter of 2009, uncertainty surrounding the project's focus in light of U.S. Government mandates for a reduced U.S. presence in project implementation in Pakistan.

These developments meant that during its first two and a half years, ED-LINKS operated under at least four different Project Management Plans (PMPs), the genesis of which were the CoP's own vision of ED-LINKS, the Mission's requests for project changes, or recommendations of the M&E team. Indicators were added or eliminated to accommodate rapidly changing project scenarios, to ensure consistency with USAID/Pakistan's Basic Education Operational Plan, or to be consistent with new ADS guidelines. In one case, the development of a new PMP meant that 25 of the project's 49 original indicators were

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[59] For a complete description of ED-LINKS' monitoring and evaluation efforts, including statistical and econometric assessments of ED-LINKS' data sets and comparison group impact study, see ***Appendix 13.***

[60] It should be noted that Pakistan's promotion (Grade 8) and matriculation (Grade 10) examinations traditionally have had a relatively narrow focus on testing knowledge, rather than the application of problem-solving and critical thinking skills.

[61] Test results provide a widely accepted indicator of achievement.

dropped, while 15 new indicators were added.[62] This scenario of changes would have been taxing under any circumstances, but an uneasy relationship among USAID, ED-LINKS' senior management and senior MSI M&E staff[63] exacerbated the inevitable challenges of carrying out the complicated planning and execution of a coherent M&E strategy.[64]

Given ED-LINKS' strategic interest in the interplay of teacher performance and student achievement, as reflected in the first and second Intermediate Results of the project's results framework,[65] it is reasonable to assume that one of the first evaluation activities ED-LINKS would plan would be the gathering of baseline data about teacher performance in the classroom and student achievement pertaining to the core academic or technical areas focused upon in the project – mathematics, science, English and computer technology. Indeed, ED-LINKS' first "Summary Table" of indicators, which became the backbone of the first PMP, had as relevant indicators:

- % of teachers trained with USG funds who are practicing improved learning methods in science, math, computer and English classes
- % of teachers meeting improved performance standards
- Increase in students demonstrating improved performance in math, science and computers.[66]

The M&E unit might not have been able to carry out a baseline survey in the early months of project implementation because of the need, first, for government to select districts and schools where implementation would take place, and then for the project to secure the government's permission to gather the data. It would be important, though, for ED-LINKS to collect the data in the two core arenas of teacher performance and student achievement, before activities began that could contaminate them. The M&E unit acknowledged this in noting, *"All baseline data is, and will continue to be, collected before activities designed to move the indicators begin."*[67]

"Baseline Survey" of mid 2008

In fact, the project never did gather the seminal data, even though such an exercise was on the ED-LINKS evaluation agenda. In a written "Response to USAID's Issues of Concern in Program Implementation: Baseline Study," of May 2, 2008, the M&E unit gave examples of baseline data it considered essential to collect in a survey of schools it wanted to undertake the following summer. In the list of five examples were 1) Profiles of the selected schools, 2) Profiles of the head teachers/deputy head teacher/ and subject teachers of the selected schools, 3) *Performance records of the students in the selected schools*, [italics added] 4) Conditions of labs in the selected schools, and 5) *Performance of teachers in the selected school[s*] [italics added].[68]

When the M&E unit did undertake this "baseline survey" in the four project areas, the effort focused on gathering data that could be used to develop a series of "scorecards" for "performance indicators agreed with USAID for assessment of program progress in the selected schools…."[69] These scorecards

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[62]MSI, "Pakistan ED-LINKS: End of Project Report to USAID," March 2010, p. 7. Hereafter cited as "MSI 2010." MSI also noted, "Each indicator that was modified, dropped, or added presents a measurement problem because the affected indicator's values cannot be compared before and after the modification/removal/addition. Therefore, such indicators cannot be used to measure the project's performance before and after the change." MSI 2010, p. 8.
[63]Altogether MSI had nine professionals in ED-LINKS as well as an education policy expert and an accountant.
[64]A useful overview of M&E challenges from MSI's perspective can be found MSI 2010.
[65]The ED-LINKS Results framework can be found in Appendix 1.
[66]ED-LINKS, "Quarterly Report #1 (October – December 2007)," p. 3.
[67]ED-LINKS, "Response to USAID's Issues of Concern in Program Implementation: Baseline Study," May 2, 2008, p. 4. Hereafter cited as "Response to Concern 2008."
[68]Response to Concern 2008, pp. 3-4.
[69]M&E – ICT, "EDLINKS – Baseline Survey Report: ICT, Findings and Recommendations," 2008, p. 6. Hereafter cited as "Baseline Survey Report 2008."

were to monitor school infrastructure, and the effectiveness of project components at the school level (computer, English, mathematics, science), as well as administrative, academic, and library effectiveness. The component scorecards were built around school or class attributes or practices such as, in the case of the mathematics component, number of mathematics teachers per student in school, teachers having input in exam preparation, or teachers following the national curriculum.[70] Scorecards were not intended to reflect individual teacher performance or individual/classroom student achievement.[71] These "baseline data" might help decision-makers make decisions about school facilities, human resource development or subject-focused program development, all of which were important to ED-LINKS, but they would not provide substantive information about existing teacher practices in the classroom or student test results that could serve for comparison with measurement of these later in the project.

Table 9: Science Component Scorecard

Name	Description	Weight
Science Lab	Is there a science lab in school?	10%
Science Lab Tap Water	Is tap water available for science lab	5%
Science Lab Wash Basin	Are there wash basins in science lab	5%
Science Lab Condition	Whether the science lab condition is good, fair or poor	10%
Science Teachers/Student	Number of science teachers per student in school	10%
Science Books/Student	Number of science books per student in school	10%
Science Lab Usage 6_7_8	Frequency of science lab usage by 6th, 7th and 8th grades: Regularly, occasionally or never	10%
Science Lab Usage 9_10	Frequency of science lab usage by 9th and 10th grades: Daily, weekly, monthly, during exams or never	10%
Science Teaching Aids	Are there science teaching aids in school	10%
Teacher Guide Usage	Frequency of science teacher guide usage: Frequently, sometimes or never	5%
Teacher Manual Usage	Frequency of science teacher manual usage: Frequently, sometimes or never	5%
Science Learning Aids	Are there science learning aids in school?	5%
Science Lab Attendant	Is there an attendant for science lab?	2.5%
Science Lab Exposure Hours/Student	Number of science lab periods times the period duration (in hours) per student in school	2.5%

Although USAID had approved ED-LINKS' mounting this study because of its potential benefit to broad project implementation, the Agency also understood the importance of collecting baseline data specific to teaching practices and student learning - and even the value of designing a study involving treatment and control groups. In a meeting in March 2008, USAID's Agreement Officer's Technical Representative (AOTR) overseeing ED-LINKS suggested that ED-LINKS mount a baseline survey that focused "on some nonproject schools to compare the difference that [the] intervention makes." Although the suggestion was seconded by ED-LINKS' CoP, the head of the M&E unit "pointed out that using an experimental design is a wholly different exercise." Then in a report to USAID two months later, in May, ED-LINKS noted, "Our focus with the current budget is establishing the baseline related to the selected schools for ED-LINKS. We are not able to conduct a comprehensive study or survey that includes non-project schools under our current budget." Thus even though the ED-LINKS M&E unit was not considering gathering baseline data for an impact evaluation that would use experimental design, neither USAID nor ED-LINKS staff questioned the need to gather the data.

[70]Baseline Survey Report 2008, pp. 18-19.
[71]Baseline Survey Report 2008, pp. 16-20. The Science Component Scorecard, which exemplifies the type of data gathered for academic subjects, appears as Table 9.

Plans of 2008-early 2009 to Gather Baseline Data

As the field work to gather information for scorecards was being carried out in mid-2008 in ED-LINKS schools, the M&E unit was at work putting in place the key elements necessary to carry out the much needed baseline survey. This preparatory work continued deep into the fall. The project's quarterly report to USAID for the period October to December 2008 indicated that "baseline activity planning [had been] initiated for teacher performance assessment…."[72] In addition, in early 2009 the topic of the collection of baseline data regarding student and teacher performance was addressed in a trip report of MSI's M&E Director, who periodically visited the project from a base at MSI headquarters. The Director stated that "The M&E team developed all test instruments and documents at the end of last year, made all necessary copies for distribution, obtained district government agreement and approval letters to administer the tests, and trained data collectors."[73]

An Alternative Plan for Baseline Data Gathering in 2009

From this report it appears that the M&E unit was ready to meet the pressing need to gather baseline data that would make it possible eventually to assess the "ultimate link" in ED-LINKS: *the link between teaching and learning.* The M&E Director then went on to report, however, that data collection had been about to start [in January 2009] when the M&E unit had been directed by the ED-LINKS CoP to stop all data collection on student and teacher performance because ED-LINKS planned to design and conduct [an alternative] pilot survey in May, using external consultants, with full data collection to take place in September.[74]

In her trip report, the MSI M&E Director stated:

> *We need to decide who is collecting these baseline data.*
>
> The longer we wait, the less the data will capture actual baseline measures because they will be influenced by the project's intervention activities. Since students are currently in the annual exam period, we would need to catch them in May before the schools close. If we don't act quickly, we will have to wait until schools are back in session in the fall. The May timeline works for MSI if we are to collect the data, provided we obtain the district governments' approval (which we had in January). Please let us know how you would like us to proceed.[75]

It is not clear that USAID was aware of this shift at the time it took place. The AOTR who had overseen ED-LINKS since its inception had left the previous October and it is possible that his replacement simply did not understand the significance of this change in direction. The unusually complex environment and activities and challenges at the USAID Mission support the feasibility of this notion. MSI, however, was not comfortable with the shift and about two weeks later MSI's Executive Vice President (EVP) and Senior Vice President for Programs met with senior AIR leadership in Washington, DC, and MSI's EVP said there were two options for MSI's continued partnership with AIR: (1) MSI would have responsibility and authority to do its work; or (2) MSI would be a resource.[76] In the final analysis the M&E unit ended up supporting the work of the external consultants, which began in May 2009, helping to gather data in 160 sample schools in ICT, Balochistan and Sindh well into the third quarter of 2009.

In fact, this survey was designed primarily to support ED-LINKS' summative assessment work and accordingly the test instruments were designed for this objective. The survey was not intended to be

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[72]ED-LINKS Quarterly Report, October to December 2008, p. 14.
[73]Katherine Hoffman, "Pakistan ED-LINKS Project: STTA Trip Report," February 20 – March 7, 2009, p. 4. Hereafter cited as "Trip Report 2009."
[74]Trip Report 2009, p. 4.
[75]Trip Report 2009, p. 4.
[76]MSI, "ED-LINKS: Summary of MSI M&E Efforts To Establish a Quality PMP, Baseline Data, and MIS," July 5, 2012, p. 6.

the classic baseline data exercise that the project needed. Furthermore, for reasons that are not entirely clear, the report from this field work never materialized and AIR ended up terminating the consultancy. In the final analysis, as project implementation rolled on, ED-LINKS was left without the teacher and student performance data that would be essential for the strongest possible impact evaluation at the end of the project, regarding Ed-LINKS' ultimate link.[77]

ED-LINKS' "Impact Study"

In early 2011 ED-LINKS carried out what it termed the "ED-LINKS 2011 Impact Study: Effects of Intervention on Student and Teacher Performance." The study used a post-test-only quasi-experimental design with matched groups, due to the lack of baseline data. "Impact" was defined as the difference between ED-LINKS schools and comparison non-ED-LINKS schools regarding the quality of classroom practices of teachers and the academic achievement of students. Testing eighth graders using standardized tests in English, mathematics and science, and observing the classroom practices of teachers was undertaken in schools that were sampled by ED-LINKS in three districts in Sindh and three districts in Balochistan.

The methodology ED-LINKS used showed that the overall percentage of eighth-grade students achieving at least 60 percent on tests across the three assessed subjects (English, math and science) in ED-LINKS schools was, on average, 9.7% higher than the percentage of students performing at 60 percent or above at non-ED-LINKS schools.[78] If the scores of all students who took the tests are considered, the average of the scores of students in ED-LINKS schools was five percentage points higher (45) than that of students in non-ED-LINKS schools (40).[79] The statistical validity of these numbers could not be confirmed independently due to the lack of data available to reproduce the reported percentages.

Two questions that might be asked about the study's methodology:

1) Are there any factors that could compromise the integrity of the matched group as a comparison group?
2) Were the evaluation's implementation procedures the strongest possible way to conduct the evaluation?

These questions are examined from both a methodological and statistical standpoint in this review of the impact study.

Review of the matched comparison group

Because the project did not have baseline data for either ED-LINKS schools or comparison schools against which to compare post-intervention outcomes, ED-LINKS sampled a total of 131 ED-LINKS schools and 121 non-ED-LINKS "comparison schools" in a post-test-only quasi-experimental design with matching schools. This meant that evaluators sampled non-ED-LINKS schools so that they were matched as closely as possible on what evaluation designers had determined were relevant variables – gender, location (province, district, urban/rural) and socio-economic status. ED-LINKS used this methodology to lower, as much as possible, the probability that some systematic bias differentiated the two groups of schools. Evaluators wanted to be as sure as they could be that any differences in test results would not be a reflection of pre-test differences between the two groups. Evaluators noted:

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[77]It should be noted that this commitment to assessing the change in student and teacher performance as a result of project interventions was even more important than it might have been had ED-LINKS carried out a mid-term evaluation of the project. MSI reported in early 2010 that "Although the M&E Team had proposed a mid-term evaluation in August 2009 and an outcome assessment several times between October 2009 and February 2010, the CoP did not authorize the activities." By way of explanation, MSI noted that there had been a great deal of uncertainty surrounding ED-LINKS because USAID had been asked to consider moving toward "greater Pakistani organization participation in implementing projects….As a result, the CoP did not feel the time was appropriate to conduct a comprehensive outcome assessment."(Source: MSI 2010, p. 8)

[78]Impact Study 2011, p. 176.

[79]Impact Study 2011, p. 175.

> The advantage of quasi experimental designs is their feasibility and low logistic restrictions; however their weakness compared to true experimental procedures is their reduced ability to infer a causal relationship [underlining inserted] between intervention and outcome variables, given observed differences between treatment [ED-LINKS] and control [non-ED-LINKS] groups.[80]

ED-LINKS may be credited for carrying out this assessment. Project managers recognized the need to try to determine whether or not ED-LINKS interventions had significantly improved student learning outcomes, even though there were no baseline data against which test results could be compared. Regarding the selection of comparison schools for this study, there is nothing in ED-LINKS' description of the methodology that indicates that the control group schools were randomly selected.

The case for matching the comparison group was based on the logic that both groups of schools were of the same (1) type "…both intervention schools and comparison schools were selected among the government schools (i.e., there were no private schools in the sample); (2) socio-economic status "…government schools cater the needs of poor and lower middle class children,.." , "… All public schools have one regular funding source, which is the government"; and (3) locale "…all comparison schools had a geographic location common with ED-LINKS schools (i.e. the same district/tehsil and/or urban/rural area)…."[81]

In contrast to this assumption that "one can safely conclude that intervention and comparison public schools sampled for the study have approximately the same socio-economic status," a 2006 World Bank Policy Research Working Paper, "Learning Levels and Gaps in Pakistan," argues that:

> …not all government schools are the same—the difference in learning between a high-performing and a low-performing government school is *twenty-four times* the difference between children from poor and non-poor backgrounds after controlling for observed child-level differences….
> …we speculate … that the large differences across schools reflect differences in teacher commitment and motivation—whether children learn in government schools largely depends on whether their teachers are heroes or zeros.
> For the Pakistani data, we show that there are bad and good schools in *every* village, so that most variation in learning is driven by differences *across schools* in the same village. [82]

According to a project report, "Pakistan: Learning and Educational Achievements in Punjab Schools (LEAPS): *Insights to inform the education policy debate*,"

> … the gap between the best and worst government schools is 10 times the gap between children from rich and poor families and 15 times the gap between children with literate and illiterate parents. [83]

ED-LINKS' designers of the impact study also assumed that locality similarity implied institutional similarity, other factors being equal.[84] In contrast, the World Bank Working Paper noted:

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[80]ED-LINKS, "ED-LINKS 2011 Impact Study: Effects of Intervention on Student and Teacher Performance," p. 165. A description of the methodology can be found on pp. 165-171. Hereafter cited as "Impact Study 2011."
[81]Impact Study 2011, pp. 167-168.
[82]Das, Jishnu, Priyanka Pandey and Tristan Zajonc, "Learning Levels and Gaps in Pakistan," World Bank Policy Research Working Paper 4067, November 2006, pp. 4-5, 18. Hereafter cited as "Gaps 2006."
[83]Andrabi, Tahir, Jishnu Das, Asim Ijaz Khwaja, Tara Vishwanath, Tristan Zajonc and the LEAPS Team, "Pakistan: Learning and Educational Achievements in Punjab Schools (LEAPS): *Insights to inform the education policy debate*," undated, p. 109.
[84]Impact Study 2011, p. 167.

> [T]his variation across schools is *not* due to difference across villages; indeed the largest differences are *between schools* in the *same* village, so that there are some good (and some bad) schools in every village.[85]

Furthermore, one factor that the evaluation methodology does not appear to take into account is classroom and school size. As noted above, the description of factors controlled for mentioned only type of school, socio-economic status and locale. There is no indication in the study's methodology or available data that the evaluation design controlled for school or class size. The Aga Khan University Examination Board has reported that there is evidence that the mean score of students in exams is negatively correlated to classroom size and with school size. This is true only in Grade 6, but "It appears that smaller government schools draw upon a better educational entry than large schools."[86]

Likewise, "Class size is an important determinant of classroom processes. [The t]eacher has to devote more energy for class management and thus may have less focus on transfer of teaching into learning. It is a success of these teachers that they do manage to involve many students in the learning process….However this success does not translate into student performance in promotion exams.… [The] mean of student scores from large classrooms is significantly less in most of the subject exams….Student scores in Grade 6 English and math are strongly negatively correlated with classroom size…. This indicates the comparative high demand of a manageable classroom size for teaching of skill-based subjects in Grade 6."[87]

The point to be made here is that if the comparison group of schools in the ED-LINKS impact study were to be comprised of a disproportionate number of large schools with a disproportionate number of large classes when compared to ED-LINKS schools, then the possibility exists that these two factors have negatively influenced the comparison school student test results (statistical implications of these omitted variables are further discussed in the statistical review below). It is unfortunate that the study's design did not control for these variables.

Taken together, this evidence challenges the ED-LINKS impact study's assumptions of parity among government schools. Significant disparities do exist, even among government schools in a single village. The evidence also raises questions about the importance of variables that the study did not take into consideration – the omitted variables of school and classroom size – when defining comparison groups.

Test Administration and Teacher Observation

As for the choice of evaluators used to administer tests, ED-LINKS states that "To conduct the tests in sample schools, ED-LINKS trained a group of test administrators."[88] These same individuals carried out the observation of teachers in the classroom.[89] While the project took considerable steps to ensure transparency in test administration procedures and standardization in classroom observation, it is always preferable for evaluations such as this to be carried out by a third-party, rather than by the organization whose interventions are being assessed. This role of impartial evaluator is often taken on by a university or professional research group to minimize any threat of conflict of interest in generating or handling data at any point in the research process. It is regrettable that this was not done.

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[85]Gaps 2006, pp. 4-5.

[86]Isbah Mustafa, Aga Khan University Examination Board, "Close-out Report on Interventions in EDLINKS Project (Nov 2007-Nov 2010), p. 31. Hereafter cited as AKU-EB 2011. AKU-EB explains, "Big schools have more teaching staff thus the concept of subject department exists. In small schools one teacher handles multiple subjects. Despite this advantage students of big schools achieve fewer marks than those small schools. It may be due to more administrative tasks for the head teacher of big schools. Their engagement with management issues spares less time and energy for academic leadership. Teacher union is stronger in big schools. The office bearers of union usually belong to big schools. The union members conduct their meetings in such schools. Also, in Sindh, most of the large classrooms exist in big schools as class enrolment is strongly correlated with schools size…." AKU-EB 2011, p. 31.

[87]AKU-EB 2011, p. 31.

[88]Impact Study 2011, p. 170.

[89]"Classroom observations were carried out immediately after the tests were administered." Impact Study 2011, p. 171.

Review of Statistical Evaluation Methods

The JBS/Aguirre evaluation team received a total of 15 Excel files and one Access database from USAID to determine if further analysis could be carried out that would contribute to a deeper understanding of any link between better teaching and more learning in ED-LINKS. Evaluators assessed and analyzed these data for use in alternative statistical analysis. The data analysis team employed two methods in assessing the data: (1) data reliability and validity checks and (2) investigation of possible triangulation options by linking ED-LINKS and external data sources through a content analysis. The data assessment and analysis—conducted by a data analyst employed by JBS and an independent econometrician—showed that (1) there are limited data on student achievement (only the ED-LINKS impact study had useable student achievement data), (2) there is limited disaggregated data (most of the data are at the region or district level), and (3) linking ED-LINKS data sources requires some manipulation of inconsistent education management information system (EMIS) codes. (See ***Appendix 13*** for a detailed description of the data assessment process.)

Without describing here the full econometric analysis provided in ***Appendix 13***, it can be reasonably concluded that the link between the desired "treatment effect" and the less robust "difference in means" is bias. Bias arises from multiple internal validity threats and three other factors observed in the ED-LINKS study. The first factor to consider is the case of omitted variables, which occurs when data that affect outcomes are omitted. In this study some obvious variables are school and class size, student age, district definition, population, boundaries, other testing result sources, and prior teacher or student performance intelligence. The second factor is aggregation, which is the evidence of high reliance on group results to imply individual gains. This is based on the statistical results and limited individual level data availability. Futhermore the use of aggregate descriptive statistics, the use of default effect size measurements, and the high standard deviations reported throughout the results section of the study, all contribute to this factor. In addition, the lack of empirical data intelligence such as data dictionaries, indexes, and relationship models hinders using alternative statistical methods to reduce or eliminate the aggregation bias in the study. The third and final factor worth mentioning is ***selection,*** which challenges the restrictive selection of certain information over other correlation sensitive options. For example, the selection of 8th graders without using their former years of education would constitute selection bias. (See *General Modeling Framework* in ***Appendix 13*** for a more detailed discussion of bias and alternative modeling strategies.)

The Aga Khan University Examination Board: Using Middle School Promotion Exams to Assess Student Learning

The Aga Khan University Examination Board (AKU-EB), in its role as sub-contractor to AIR to oversee implementation of ED-LINKS' assessment work, concluded in 2010 that "A study of a sample of 27 target schools shows significant shift in student performance from 2008 to 2010. This shift indicates the impact of project interventions on students ….The study of 27 target schools reveals the school level improvement in student performance in 16 schools….This improvement is a repeated measure of achievement in three subjects by three grade level[s]."[90]

AKU-EB approached this study through comparison of the promotion exams that it was working to improve in ED-LINKS. In comparing the results of 2008 and 2010 exams for 6th, 7th and 8th graders in math, science and English, AKU-EB found that 6 out of 9 schools in Balochistan and 11 out of 18 in Sindh showed improvement in overall student performance between those two years. This means that 60 percent of the sample schools showed improved student performance.

[90]AKU-EB, "Close-out Report on Interventions in EDLINKS Project (Nov 2007 – Nov 2010," p. 1.

Several observations might be made about this study. Regarding the 27 schools whose results were included in the analysis, these were schools whose exam results for both 2008 and 2010 were "available." It is unclear whether these were typical of ED-LINKS schools or not. Were exams available because these schools were organized and administratively excellent? Were they available because that is where testing had been done first? It is also not readily apparent how many students in how many classrooms were captured in the sample, information that would help determine how to interpret findings. In addition, the 2008 exams needed to be "re-marked" in order to have scores that could be considered comparable to the marking of the 2010 tests; it is not apparent just what impact remarking might have had on the validity of the 2008 test results.

It should be noted that the *post facto* impact study was a good conceptual idea compared to no study at all. The implementation and documentation, however, were ineffective in producing results that are empirically verifiable or rational. A more robust and rigorous analytical study could have been produced and disseminated if the study had been better planned and managed by a cross-discipline group of qualified professionals. From the analyst's perspective, the decision to move forward with a *post facto* impact study is usually justified by transparency regarding the current data situation, particularly the status and sources of the data. In the event data are limited, methodologies and strategies are provided which outline the theoretical rationale used to compensate for the missing or limited data. The empirical validity of the methodologies and strategies used are often vetted by descriptive statistics, models, regressions and estimations that allow other professionals logically to comprehend or critique the findings. In conclusion, a program of ED-LINKS' magnitude and implications warrants a better quality *post facto* impact study than what was undertaken because the funder wants a cost-effectiveness analysis and other stakeholders want to be able to plan for additional resources to generate further return on the interventions.

Overall Conclusions Regarding ED-LINKS 'Ultimate Link' to Student Learning

ED-LINKS faced multiple challenges during the period when baseline data should have been gathered. There were organizational, managerial, financial, and political challenges in abundance to draw stakeholders' attention in too many directions. Nonetheless, early in the project, PMPs and reports from various sources reflected awareness of the need to gather baseline data on teacher and student performance, but in the end these data were never gathered. It seems ED-LINKS' CoP did not set sufficiently high priority on the effort to ensure it happened in a timely fashion, using a design commensurate with the need. ED-LINKS' M&E unit, juggling its own complex activity agenda, could not move forward unilaterally on such an important task, but had to depend on the commitment of ED-LINKS' senior managers to support the effort. USAID, because of frequent staff changes and the fact that individuals who were responsible for overseeing ED-LINKS had to juggle many demands on their time and attention, never unequivocally insisted that the work get done.

In the end, ED-LINKS had to settle for an impact evaluation of quasi-experimental design in which a causal relationship between project interventions and increased student learning could not be indisputably inferred. It is possible that the relationship between teaching practices and student learning, if it exists, is higher than the comparison group study found; it might be lower. However that may be, the study that ED-LINKS undertook to determine impact does not stand up to scrutiny. Efforts made by this study's evaluation team to assess the data used in the 2011 study and analyze it further revealed deep flaws in the foundation of this work—especially in regard to potential bias through omitted variables such as school and class size and aggregation that relied on group results to imply individual gains. In the final analysis ED-LINKS cannot prove that its efforts to improve teaching and to bring about reform of the education system led to increased student learning. That conclusion simply may not credibly be drawn.

In sum, a number of key conclusions can be drawn:

- The failure to carry out the planned Baseline Survey—and especially the absence of student and teacher performance measures—had had a negative impact on all project monitoring, formative, summative and impact evaluation efforts, as well as this study.
- During its first two and a half years, ED-LINKS operated under at least four different Project Management Plans (PMPs), linked to the CoP's own vision of ED-LINKS, the Mission's requests for project changes, or recommendations of the M&E team.
- Indicators were added, eliminated or redefined to accommodate rapidly changing project scenarios, USAID/Pakistan's Basic Education Operational Plan or new ADS guidelines. In one case, the development of a new PMP meant that 25 of the project's 49 original indicators were dropped, while 15 new indicators were added or redefined, making comparative data analysis difficult or impossible.
- An uneasy relationship among USAID, ED-LINKS' senior management and senior MSI M&E staff[91] exacerbated the inevitable challenges of carrying out a coherent M&E strategy.
- ED-LINKS' internal 'Impact Evaluation' was seriously compromised, not only by the absence of baseline data, but by flaws in its design including erroneous assumptions regarding variability among government schools, classroom size, socio-economic status, geographic locations, "available" exam results, statistical methods, and validity of a study conducted by the organization being evaluated. Together these indicated potential bias arising from multiple internal validity threats and other factors observed in reviewing the ED-LINKS impact study.

(For a full description of efforts to assess the 2011 impact study data and analyze it further, see ***Appendix 13***.)

[91] Altogether MSI had nine professionals in ED-LINKS as well as an education policy expert and an accountant.

ADDRESSING THE EVALUATION QUESTIONS

THE FIVE CORE EVALUATION QUESTIONS

Core Question 1. What have been the greatest improvements in teacher education quality training, student performance and learning, and governance capacity as a result of the ED-LINKS project?

- Student performance and learning
  - Learning environment—Students appeared to appreciate and use enhancements provided by ED-LINKS as long as they were placed within an adequate physical environment and supported by trained teachers. Less successful in too many areas were enhancements that did not have the necessary supporting infrastructure and/or had poorly trained or no teachers to facilitate use.
  - Classroom instruction—Improved learning for students seems to have resulted from changes in pedagogy that was supported by the deepening of technical knowledge of teachers through well-conceived practical, applied AKU-IED workshops, alternated with practice in the classroom; this model should be replicated/expanded.
- Teacher education quality training
  - Model using Master Trainers, teachers and head teachers shows promise, particularly when they are at the school level, to maximize teacher performance and an improved school learning climate.
  - Moving teachers away from rote learning toward a student-centered, active-learner model appears to have resonated with a significant number of teachers when taught as part of a peer mentoring model using subject-specific content; this is worth pursuing further.
  - Involving government officials at the provincial and district levels in teacher in-service quality training initiatives linked to policy level questions is sound; ED-LINKS succeeded, although in a non-formalized way, to involve RSUs, PITEs, and top district officers in taking some ownership of teacher quality issues.
- Governance capacity
  - At provincial and district level it appears that the capacity of EMIS offices has been improved, although there are mixed results linked to hardware, human capacity and training issues.
  - District-level education managers and school head teachers developed their capacity to act as effective financial and management leaders, with the impact of this program differing according to specific district and school contexts and participant motivation.
  - The capacity of PITEs has been improved and they have more resources to draw upon in terms of Master Trainers and lesson plans aligned with the 2006 curriculum. Lack of printed materials is a drawback.

Core Question 2. How successful were the ED-LINKS activities in carrying out the various programs?

Overall there were mixed results for student learning, teacher training and governance reform.

- Student performance and learning:
  - Learning environment— This did improve in selected schools. Results of assessment of teacher training appear mixed. The Teacher Quality Index – it is unclear how valuable the 21 items on a four-point scale were, or how the index linked to valid student assessment. There is a need to explore more localized, decentralized courses that are more accessible to teachers.
  - Student assessment systems—Core idea of bringing systematic formative and summative assessment geared to the new curriculum and pedagogical change is sound. Assessment encourages short-term feedback loops and because teachers teach to the test, annual

benchmarks that move teaching away from rote learning are valuable. Teacher use of formative assessment seems to tie to student learning outcomes, primarily at the middle school (pre 9th grade) level. While many teachers appeared to use group learning and interactive discussions, the new assessment systems seemed to expect too much from teachers, compromising the systems' success and sustainability. Lowering of expectations and realistic pacing of scope and sequencing are needed.

- Classroom materials and equipment—Science clubs, computers, labs, and EXCEL camps were all considered useful and were highly appreciated by both students and teachers, but they were never adequately institutionalized within the government system to become sustainable; minimal or no provision made for maintenance and support of programs, materials, equipment (e.g., who is responsible, where are funds for replacing necessary supplies, making repairs?). Examination needed of successful, sustainable efforts to learn how to implement, replicate.
- While two studies suggest positive impacts arising from ED-LINKS, they do not adequately support definitive conclusions linking changes in classroom practices to improved student performance due to ED-LINKS.

- Teacher education quality training: this was moderately successful, with probably the most impact in ED-LINKS schools with multiple interventions (i.e., head teacher and teacher training), motivated Master Trainers, or receptive district and school educational climates.
- Education leadership and management training: This was successful across at least some poorly performing and better schools, and in rural and urban schools, although more evidence is needed to determine if and how much change occurred across ED-LINKS sites.
- Governance capacity:

  There appeared to be some, but limited, active engagement with government at the national and provincial level to ensure buy-in and ongoing institutional commitment for sustainable educational training and development; while federal departments sustained some education managerial training, provinces and agencies have yet to assume responsibilities for their institutional development in Pakistan's post-devolution phase.

Core Question 3. What were the major challenges faced by ED-LINKS and lessons learned?

- Challenges
  - Pakistan faces enormous political, cultural, demographic, economic and management challenges that mitigate against any education development initiative such as ED-LINKS that is built on innovative concepts, but is too sophisticated or sanguine about socio-political-cultural differences, or unrealistically ambitious.
  - ED-LINKS was a geographically far-flung endeavor, sometimes operating in difficult areas where security may be a barrier to ready movement, supervision, support and communications; such areas were challenged in terms of human and institutional resource capacity and the availability of a trained talent pool for implementing such a complex and ambitious program.
  - Governance systems within which ED-LINKS operated are not always easy to discern and vested interests and/or politicization may not support a new educational approach, philosophy, or methods; it may not promote the equitable distribution of resources, transparency, or merit-based promotion systems.
  - Management complexity, typified by a large number of partners and stakeholders, often took the form of institutional 'stovepipes' that made it difficult to create the synergies needed for building a movement or sustainable change.
- Lessons learned
  - Institutionalize for sustainability by building ownership into a project, with firm organizational, management and financial commitments up front; ED-LINKS demonstrated that not enough high-level preparations were in place at project start-up, particularly around the sustainability of

interventions, but that bottom-up initiatives (i.e., district and school level changes) do work in a dynamic environment, and could be enhanced. USAID should consider working more actively through Pakistan's existing network of teacher-training colleges and its national and provincial stakeholders - even through an established educational university structure - to bring about sustainable positive change over time.

- Be realistic about formal and informal systems and their influence on how project activities will work. For example, ED-LINKS over-estimated the capacity of teachers and educators managing the system to adopt new formative and summative student assessment mechanisms; it assumed transparency in the selection of participants in teacher training programs; it presumed that the district EMIS offices had the capacity to implement the training that staff received.
- Maximize synergy by choosing project activities carefully. ED-LINKS capitalized on its investment in supplemental teaching materials on the one hand (IR 3.1) and its teacher training program on the other (IR 3.2). It created synergy between its student assessment activities and its workshops for teachers. ED-LINKS' choice of activities for governance reform could have been tied more closely to its other activities than was the choice of EMIS; for example, it might have selected governance reform closely allied to the student assessment systems change the project sought.
- Plan and execute monitoring and evaluation activities to be sure that information is in place that will a) provide formative assessment feedback and b) allow the project to evaluate the impact of its activities. Ed-LINKS' failure to lay the foundation for assessing impact compromised any claims in that realm.
- Less encompassing lessons include the following:
  - Maintaining project focus within an environment of changing targets and financial re-allocations might best be achieved by keeping at least one senior manager focused on original project objectives.
  - Where funding must be reduced, consider cutting back on number of activities rather than cutting targets.
  - A 'bookend' mentoring model design that alternates workshop training with classroom practicum experience appears to be both popular and replicable.

Core Question 4. What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan

- Student performance and learning
  - Engage in systematic research to test the effectiveness of ED-LINKS' approach to student-centered learning interventions over time within the realities of the Pakistan context; test the best of ED-LINKS within a sample of schools to learn more about what works, what could be even better, and how to scale up to reach large numbers of schools at the lowest possible cost – to increase the capacity of teachers to do a good job educating their students.
- Teacher education quality training
  - Institutionalize the successes of ED-LINKS within a national or provincial framework of teacher training through existing universities, colleges, local and national educational agencies, including mentoring and deepening subject knowledge through applying student-centered learning. Institutionalize teacher pre- and in-service training systems by adopting benchmarks in different domains, (i.e., recruitment, preparation, placement, support, research, etc.), and conceptual frameworks that link everyday practice, research and vision/goals.
- School governance
  - Engage in informed policy dialogue with government at the national and provincial levels to determine what government is eager and willing to do to bring about the changes it sees as

essential to the nation's future; determine how donors can complement those priorities and government's concrete commitments.

Core Question 5. What was the government's response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?

- Government's response
  - Government was open, willing, and interested in the ED-LINKS model and proposed interventions including development of EMIS system, Annual School Census (ASC).
  - Changes that were systematically introduced included improvements to EMIS and EMIS-related capacity development, education management and leadership training, use of Master Trainers for in-service training, use of lesson plans.
  - Regarding Government/District Examination Boards, Bureau of Curriculum, despite great interest, sustainable change appeared limited, although the impact of district exam committees and formative assessment as a part of teacher training is not well understood.
- Impact of devolution
  - ED-LINKS was able to capitalize on the impact of devolution (both the fallouts from 2001 and 2010) by providing training that assisted provinces and district-level education offices to adapt to changing responsibilities, needs, and lingering issues such as a bloated bureaucracy and lack of or poor supervision of teachers and schools.
  - ED-LINKS did work with Provincial and District Education Offices and staff, suggesting that many innovations were not viewed with suspicion.
- Sustainability of changes
  - EMIS appears ongoing and likely to be sustainable—although it requires further government investment in terms of IT support, power grid infrastructure, training and equipment at the school level, and linkages to student learning outcomes such as exam results.
  - Assessment, pedagogical and subject-matter training appear not to have changed, or been adopted and sustained to some extent. PIKEs appears to have adopted Master Trainers as resources; pedagogical and subject-specific training material, and printing and dissemination of materials remain challenges.
  - Improvements such as computers, labs, science kits or science clubs do not appear to have been adopted or continued due to lack of initial training, resource capacity, or fit with a school's curriculum.
  - EDOs and head teachers who gained capacity in using EMIS and leadership skills appear to be making sustainable changes in their districts/schools – the percentage is difficult to quantify.

THE 20 SUPPORTING EVALUATION QUESTIONS

Evaluation Question A1: What progress has ED-LINKS made in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity to improve access, quality, and sustained service delivery?

ED-LINKS appeared to have made progress in all three areas it targeted, although the degree of progress is probably less clear in the area of student learning and the learning environment due to lack of data. Starting from a baseline of low capacity among both middle and secondary teachers and among education managers, ED-LINKS provided a wide range of training that appeared to improve the capacity of a significant number of educators and administrators. ED-LINKS made less progress in its more ambitious attempts to tie together interventions – such as EMIS data collection linked to student achievement, and curriculum tied to examination systems – thus failing to achieve even more significant change. Nonetheless ED-LINKS made progress in documenting the challenges and steps needed to make such changes and paved the way for future interventions.

Evaluation Question A2: What are ED-LINKS' primary accomplishments from the investment of education core funds? How have core funds contributed to the overall success of ED-LINKS, e.g., have they provided innovation, tool development, scalability/replicability, field performance, leverage of field funding, other?

The investment of core funds in some ways fell short of achieving accomplishments in the areas of innovation, tool development, scalability and field performance. This is in part due to modifications to the original agreement and a shift in funding away from the last year or two of activities, when innovative tools were scheduled to be printed and copied and distributed. Nonetheless, primary accomplishments in this area include the use of EMIS data and educational management training information by education managers and principals in innovative ways to counter more established and ineffective networks of influence (i.e., feudal landlords, some politicians, maliks), and the use of Master Trainers by education managers and provincial governments. In Balochistan, the education department is using Master Trainers for in-service teacher training in all 22 districts. In Sindh, one EDO in Sukkor has created a strategy to use nine Master Trainers within his district.

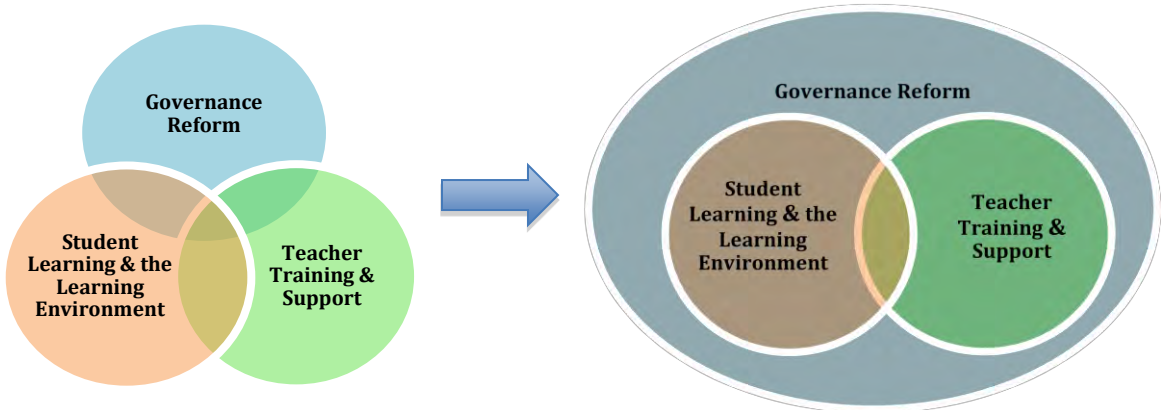
Evaluation Question A3: What are ED-LINKS' primary accomplishments from the investment of field support? Are there specific accomplishments that have been achieved in a context of decentralized education services?

Because ED-LINKS was already positioned to work at the provincial and district levels, the Constitutional amendment of 2010, which shifted power and responsibilities from the national to provincial level, did not have great impact on the project. Specific accomplishments of ED-LINKS, however, in a context of decentralized education services was to enable decision-makers – both those disempowered by the Constitutional amendment, such as EDOs and DOs, and those empowered by the Constitutional amendment, such as provincial government offices – to gain knowledge, access resources in the form of EMIS data, and gain the capacity to advocate more effectively for educational improvements. This included college principals in FATA, an EDO in Pishin, Balochistan, and some in Sindh, as well as PITE and BoC directors, who obtained government funding.

Evaluation Question B1: What was the original development hypothesis and how has it evolved over time? What needs did ED-LINKS address and how [in] fulfilling the terms of the project design did it meet those objectives?

ED-LINKS' development hypothesis did not change materially over the life of the project. From its inception, the project operated according to an assumption that student learning, teacher training and support, and governance reform were all intertwined and influenced one another. The fact that the sustainability of ED-LINKS' interventions and activities is so dependent on government and institutional adoption and support indicates that the development hypothesis might have been better conceived as the student learning and teacher development circles overlapping within the larger circle of governance.

Figure 4: Original and Revised Development Hypotheses, Compared



ED-LINKS Development Hypothesis (Abbreviated Version)

ED-LINKS Development Hypothesis (Revised Abbreviated Version)

Evaluation Question B2: How effective is the ED-LINKS organizational and management structure in achieving results? How does the ED-LINKS structure maintain the quality of ED-LINKS' work?

ED-LINKS' organizational and management structure was largely successful in achieving results and maintaining the quality of work except at the most senior level (i.e., the Chief of Party and home office leadership), which early in the project seemed to be overly intertwined. The decentralized structure of the ED-LINKS organization, with staff in the EDO's office in every district, allowed ED-LINKS to work closely with these offices and gain first-hand information about how programs were being implemented. The organizational structure could have been improved through greater decentralization to allow for greater interaction at the school level, and by paying greater attention to the diffusion of expertise (i.e., placing subject content specialists for teachers at the district level and not just at the provincial level).

Evaluation Question B3: Is the ED-LINKS management team responsive and accountable to its key clients and partners: USAID Missions and host country partners (i.e., government and NGOs)?

Determining whether the ED-LINKS management team was responsive and accountable to its key clients and partners is somewhat difficult to determine, given the many modifications to this project, the frequent turnover of staff at ED-LINKS and USAID, and the devolution of governance authority from

the national to the provincial level. It could be argued that in some ways the ED-LINKS management team may have been overly responsive to USAID, accepting modifications that significantly changed the focus of the project, while failing to supply detailed, timely, thorough, and analytical information about the status of the project. The ED-LINKS project was, for the most part, responsive and accountable to its host-country partners, holding annual meetings and enabling host-county partners to achieve their outputs and outcomes, with the caveat that modifications to the ED-LINKS project and the resulting lack of funds forced some host-country partners such as AKU to end relationships early. Confusion over roles, responsibilities and work plans, which arose with key partners such as MSI and to a much lesser extent with AKU, may have resulted in perceptions that the ED-LINKS management team – especially in the early and middle years – lacked responsiveness.

Evaluation Question B4: Are the systems developed by ED-LINKS for monitoring, evaluation, and knowledge application effective? How have these elements of the program supported the achievement of the overall project objective?

The systems developed for monitoring, evaluation and knowledge application supported the overall project objectives, to the extent they allowed ED-LINKS staff to track a wide range of activities over a broad geographical area. At one point, ED-LINKS had 37 regional and district-level offices. Staying closely in touch with program activities contributed to ED-LINKS' efforts to achieve the overall goal, which was strengthening governance and teachers to improve student learning. The advent of emergency situations, such as IDPs in Malakand in 2009 and devastating floods in the following years, seems to have impacted ED-LINKS' ability to monitor activities to the same extent, as staff were spread thinner and the focus of activities was much broader.

Evaluation Question B5: Has the USAID Missions been effective in managing the ED-LINKS activity?

Given the context of cascading emergencies and frequent staff changes within USAID, it is not surprising that the USAID Mission in Pakistan's management of this project fell short of the ideal. The ED-LINKS-USAID relationship was originally highly interactive, with weekly reports to USAID from ED-LINKS, but staff turnover and the shift to a broader range of activities, some with shorter-term objectives, and a total of 13 agreement modifications resulted in more fragmented communication and less effective management of the project.

Evaluation Question C1: What specific technical approaches or products of ED-LINKS have demonstrated the greatest impact in developing teacher education and professional development; students learning and achievement, and governance of teaching and learning?

One technical approach that ED-LINKS developed in the area of teacher education and professional development was to develop a systematic, more inclusive approach than the traditional one, to the selection of Master Trainers and teachers as in-service activity participants. Unlike in the ESRA project and in much of ED-LINKS as well, some DOs and head teachers were invited to participate in the selection of teachers, and competency tests were conducted to screen Master Trainers. Although this was an imperfect system, with education managers still at times finding ways to select "favorites" regardless of merit, this technical approach helped build ownership of the in-service training and enhance sustainability. The creation of teacher in-service training materials was another important technical approach, in terms of the ability of provincial PITEs and BoCs to have access to material developed by Master Trainers within their own provinces, and piloted in schools with teachers. This

material, although it has yet to be printed, can be used by governments to do their own trainings or be shared with others who can use such material in their own work.

Evaluation Question C2: What is the value-added of developing teacher education and professional development; student learning and achievement, and governance of teacher and learning tools developed or refined under the ED-LINKS program? Who uses these, why, and how?

The value-added of ED-LINKS' work was the professionalization and increased capacity of the teachers and education managers trained within various programs. Although ED-LINKS' core activities came to a close in 2011, evidence suggests that at least some changes to practice stuck, and diffusion-like organizational cultural change may occur as teachers and education managers transfer to new posts and rise within the education structure. Whether ED-LINKS helps to bring about a critical mass or "tipping point" remains to be seen and would be difficult to verify, but this is a possible factor as popular calls for increased accountability in the public education sector become more prominent. In Balochistan, for example, the education department is using the Master Trainers trained under ED-LINKS to provide in-service training in all 22 districts, since it does not have staff to undertake such trainings.

Although efforts to link student assessment to exams made little progress under ED-LINKS, this effort was a value-added activity in the sense that it clarified the challenges and opportunities likely to face USAID or other donors who attempt to address this issue. ED-LINKS found, for example, that District Exam Committees need to meet much more often than once a year, given the number of exams and how frequently they change, the lack of capacity at the provincial, district and school level, and uncertainty over the future of the curriculum. The 256 exams that were created as part of the ED-LINKS project represent a pilot effort that can be built upon.

Evaluation Question C3: One of the key approaches of ED-LINKS has been to facilitate nationwide and subsequent provincial standards for primary and secondary teacher education that conform to the guidelines for the GOP's new curriculum with particular focus on science, math, and computer subject areas.

One of the challenges that ED-LINKS faced in facilitating nationwide stands for teacher education has been the impact of the 18th amendment to the Constitution in 2010, and the subsequent shift of curriculum development to provinces. ED-LINKS responded to this change by working with the governments of Sindh and Balochistan to facilitate the use of the national 2006 curriculum, which represents the most up-to-date curriculum available, and working with them to adapt their different syllabi to the 2006 curriculum, including creating teacher guidelines and lesson plans around science, math, English, and computer science. ED-LINKS made progress, but proceeded cautiously in this area, especially given political, social, and cultural debates over what languages to use – English, Urdu, Sindi, etc. – and reluctance to change national board exams. Annual meetings around this issue, which involved multiple stakeholders, may not have been sufficient, given the complexity of this issue.

Evaluation Question C4: Has the investment in these teacher education and professional development activities contributed substantially to ED-LINKS' ability to replicate and scale up more effectively? Do these activities inculcate best practices for encouraging learning outcomes and fostering a positive learning environment?

ED-LINKS' investment in teacher education and professional development contributed substantially in some ways to ED-LINKS' ability to replicate and scale up effectively, just as in other ways it was less effective. The development of teacher training material that is owned by provincial governments, and the development of government master teacher trainers and transformational leaders at the district and school levels potentially enable large-scale replication and scale up. This can be seen in ICT, Sindh and Balochistan, where the education directorates have taken steps to scale up elements of ED-LINKS training, or are discussing it (i.e., in Sindh). ED-LINKS' model of professional development in large measure does represent global "best practices" in educator professional development linked to improved student outcomes, where collaborative leadership and student-focused teaching in the classroom, drawing upon models of continuous learning and professionalism, predominate. AKU-IED, ED-LINKS ' partner, also used a community of practice model for its Master Trainers, instituting another level of best practice that can potentially be replicated and scaled up as curriculum, syllabus, or exams change and new teacher-training material needs to be developed. ED-LINKS appeared to be less successful in its other teacher education programs such as training related to science and computer labs, with the exception of low-cost, no-cost materials training. This is because training did not appear to occur concurrently with the delivery of materials, and fewer labs were established than originally planned due to modifications in the program.

Evaluation Question C5: How has ED-LINKS replicated and scaled up successful technical approaches and products? What lessons have been learned about the process of replication and scale up, particularly the transfer (applicability) of approaches and products to different provinces?

ED-LINKS was able to replicate several technical approaches across provinces. This included the establishment of classroom libraries in ICT and FATA, the use of no-cost, low-cost materials development in science training, and education management training. In rural Balochistan, education management training needed to be adapted to fit the needs of participants, who had less familiarity with the concept of data. In ICT, with its smaller geographic size, head teachers could be included in the training. In Sindh and Balochistan, which have more complex education management structures, ED-LINKS found it made sense to include learning coordinators in addition to district education managers.

Evaluation Question C6: Compare ED-LINKS' mainstreaming strategies and approaches to develop required pedagogical skills, subject knowledge, classroom delivery, creativity, improvisation, and questioning skills that would enhance the value of education with regard to efficiency, effectiveness, and sustainability in the field.

ED-LINKS' mainstreaming strategies to develop pedagogical skills, subject knowledge, etc. appear to be among the most effective, efficient and sustainable currently in use in Pakistan and globally. The basic model of subject-specific mentorship (also sometimes referred to as co-teaching, a variation of mentoring) is an effective means to improve pedagogical skills, subject knowledge, and the use of classroom strategies such as fostering critical thinking, creativity, and improvisation, even in challenging teaching contexts with classrooms of more than 100 students. Evaluators found that some student-oriented practices, such as group learning, are still embraced by ED-LINKS participants even a few years after training. The ED-LINKS model improved on previous teacher training models, such as cascade training, training that lacks balance between pedagogy and content, and training that assumes a Master Trainer can be "a jack of all trades."

An improved version of ED-LINKS' mainstreaming strategies is CIDA's use in Sindh of school-based mentors for cluster schools, which circumvents issues of hierarchy between college-level and school-

level participants, and more efficiently maximizes teacher participation rates. Despite ED-LINKS' success in terms of its model, its implementation was negatively impacted by lack of resources for Master Trainers to pay follow-up visits to schools, as well as materials. Also, the ED-LINKS' model still leaves unaddressed significant in-school challenges such as politically influenced or preoccupied head teachers and teachers who resist change, hierarchies between junior and senior teachers, and the pressure of teaching to exams. Such pressures can be most intense in the "best" schools, where students compete to claim the highest marks on exams such as the SSC part II science group.

Evaluation Question D1: What are the priority areas for future education core investments to address USAID's primary objective to improve literacy?

ED-LINKS has shown that in-service teacher training should be a priority area and that a model built on school-based mentoring for cluster schools should be considered as a primary implementation design. Teacher training should be planned to minimize non-transparent means of selecting training participants, and workshops should be as decentralized as possible to maximize the potential for women to participate. Training should enjoy sufficient resources from government as well as USAID and be funded as a long-term activity. Learning environment enhancements such as classroom- and school-based libraries should be included in the literacy package. An assessment of positive deviance, of looking at cases of extraordinary success, in literacy efforts similar to USAID's new project, either previously or currently, either within or outside Pakistan, should be examined and, as appropriate, elements adapted for use in upcoming efforts to improve literacy. Institutionalization of student assessment systems should be pursued as a long-term means of transforming teaching. (See Question E1.)

Evaluation Question D2: What components of the ED-LINKS portfolio should be maintained in their current form? What components should be retained, but modified? Are there components or approaches that are no longer needed?

The component of the ED-LINKS portfolio that should be maintained in its current form is the over-arching model of linking student performance to reforms involving schools, teachers, and government officials. Government schools are profoundly impacted by government policies that directly or indirectly impact the performance of teachers and education managers, and change models need to incorporate a systems approach that reflects the multiple and shifting layers of agency within the system. Components that should be retained, but modified, include the in-service teacher program and training of education managers and head teachers, the capacity building of provinces to undertake teacher in-service training, and the improvement of student assessment systems and the ability of teachers to link standards-based curriculum with formative and national exams. The provision of science and computer labs should be continued, but only when linked to teacher training on their use. Capacity development as a part of governance strengthening should also be continued, but instead of focusing attention on secretaries of education – elected positions with frequent turn-over – more attention should be concentrated on lower levels, where implementation decisions are concentrated.

Components that are needed comparatively less within a student improvement-oriented education project are EMIS-related computer and hardware delivery, computer skills and software training, and improved data collection techniques. While the support of EMIS is an important long-range objective for Pakistan, its continued development will rely, in part, on factors outside the education sector, such as electricity supply, the spread of broadband capabilities, etc. Training to help policymakers and education managers use data, whether in soft or hard copy formats, should continue, however, and efforts for incorporation of student performance data into the EMIS should be made. This is because education management capacity, including an understanding of data-driven decision-making, should not be confused

with building information communication technology (ICT) systems, although they are related. In terms of priorities, an understanding of data-driven decision needs to take place before tools such as computers and software can be utilized.

Evaluation Question D3: What are the prospects and the main challenges for continued utilization of tools developed or refined under ED-LINKS after the end of this cooperative agreement?

The main challenges for the continued utilization of tools developed under ED-LINKS is identifying champions to secure funding for the printing and distribution of teacher resource guides and classroom curriculum such as math, science and English CDs. This is particularly important because ED-LINKS ended some of its activities early, in 2009, due to USAID-initiated modifications to the project. This resulted in materials and tools, such as those developed by AKU-IED and the Teacher Resource Centre, never having been printed or distributed. These and the teacher-training materials developed by Master Trainers overseen by AKU-IED are not outdated, however, and still could be used by provincial education departments, PITEs, and BoCs.

Evaluation Question D4: What are some promising new developments in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity that should be explored in possibly future activities?

Promising new developments in teacher education and professional development include the development of a school-based mentorship model to impart both pedagogical and subject-specific content. This is a promising development within the context of Pakistan, where government teachers traditionally have often been appointed as part of a political patronage system, supervision can be of limited effectiveness, and opportunities for developing professional teacher dispositions have been lacking. The training of head teachers and education managers as transformational leaders is also a promising practice, particularly when combined with in-service training. Promising developments in student learning and the learning environment include the alignment of teaching to formative assessments, learning objectives, and a standards-based curriculum; and in governance increased management skills of education officials. This is positive given the organizational structure of the public education structure, where managers are appointed on the basis of seniority and, to some extent, political networks, and have little formal training in management.

Evaluation Question E1: What are the priority areas for future education core investments to address USAID's primary objective to improve literacy?

Priority areas for future education core investments to improve literacy should include the successful components of ED-LINKS programming, namely education management training combined with in-service training that uses a capacity-building, mentorship model of content and pedagogical learning. This is a variation of the whole-school approach, which also includes education management structures up to the EDO/DEO/ADO level as the unit of change. Student assessment system knowledge, such as how to give and mark formative exams, should be included in the in-service teacher professional development programs. Changes to provincial- and district-level exam systems should be addressed separately since they involve a broader group of stakeholders and different issues from classroom teaching and practices. (See Question D1.)

Evaluation Question E2: How was ED-LINKS perceived by the intended beneficiaries? Were there gaps between objective results and perceptions of those results? Why?

Intended beneficiaries of ED-LINKS programs appeared to perceive ED-LINKS positively, with a few exceptions related mostly to the dynamic nature of ED-LINKS' programming. Some national-level staff within the Steering Committee and at NEMIS questioned the competency of ED-LINKS-hired trainers and consultants, particularly around data management systems and subject-specific content for teachers. Some ED-LINKS partner organizations, such as MSI and AKU, perceived ED-LINKS to be unresponsive or unreliable in terms of continued funding and commitment, although in most cases later in the project, partners recognized that USAID-approved shifts in funding priorities meant changes to program objectives. Similarly, at the grassroots level, some participants perceived ED-LINKS, and more visibly USAID, as breaking commitments to provide promised school interventions such as computer labs. Although districts and some schools within districts benefited from ED-LINKS programming in an objective sense, in a subjective sense the change in promised interventions fueled suspicion of USAID's good will and intentions, a general challenge facing external donors that has been well documented in the media.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Despite ongoing social, political, economic and environmental challenges, including some of the worst floods in human history, ED-LINKS sought to have a major impact on education in Pakistan through its three-pronged approach. Because of pressures that were external to the project—including changing USAID priorities that were driven by conflict and the destruction of thousands of schools and dislocation of millions of people—and for reasons that emanated internally from the project's design and implementation—ED-LINKS did not realize many of its original ambitious goals and objectives. As this study has shown, ED-LINKS did make contributions in such realms as learning environments, teacher and education manager trainings, and information access. Specifically, the ED-LINKS design had several fundamental strengths:

- The project was built around a sound development hypothesis and ED-LINKS' three focus areas of student learning, teacher training and governance reform could realize synergy.
- The ED-LINKS process of achieving its objectives was appropriate in its seeking to build the institutional capacity of the government system at the federal, provincial and district level.
- A timeline of five years for project planning and implementation was realistic for laying the foundation for continuing educational change beyond the life of the project.
- The design of working in selected provinces, districts and schools enabled broad coverage and offered the potential for replication and scale-up.

Specific achievements outlined in this report include:

- Student learning and the learning environment
  - The learning environment and classroom instruction seemed to improve for many students. Students appeared to appreciate and use the enhancements provided by ED-LINKS as long as they had been placed within an appropriate physical environment and supported by trained teachers.
  - Deepening the technical knowledge of teachers supported changes in pedagogy in selected schools.
  - The commitment to support the application of learning through such mechanisms as science clubs offered a promising approach to student-centered learning within Pakistan's traditional rote-learning system.
- Teacher training and support
  - Teacher training was moderately successful as a mentoring model and had the most impact in ED-LINKS schools with multiple interventions within receptive district and school environments, where well-trained Master Trainers were able to provide mentoring and support. The education department in project districts in Balochistan and one district in Sindh are using Master Trainers for in-service teacher training.
  - ED-LINKS' use of training organized around classroom practicums provided an effective approach to teacher training.
  - The training model's inclusion of education officials and administrators to support change in the classroom, and potentially system change, through the vehicle of ELM training was well conceived.

- Governance reform
    - Capacity at provincial and district levels, and in particular the EMIS and PITEs, was strengthened in a number of targeted areas through interventions that included ELM courses.

In the absence of new analysis of project quantitative data, which evaluators found the data could not support, this report has had to rely heavily on qualitative evidence gathered non-randomly. The following conclusions should be viewed in that light.

- Student learning and the learning environment
    - ED-LINKS should have ensured that the environment into which it was placing inputs for the enhancement of schools and classrooms was appropriate - with needed space, electricity and a teacher who was already trained in the use of the input or who would be trained by the project. Failure to do this is particularly puzzling given the project's Baseline Survey of 2008, documenting infrastructure and other ED-LINKS schools' resources.

    - The project was unrealistic in its assumption that ambitious, complex formative and summative assessment systems could be broadly institutionalized through ED-LINKS' activities using a relatively complex training agenda and materials. The idea of introducing formative and summative assessment in and of itself was powerful, but the sophisticated tools and methodology that ED-LINKS adopted to train teachers and other system educators over-estimated the capacity of those being trained and of the education system itself. ED-LINKS would have been wiser to adopt a "stepped down" training curriculum that reflected the real capacity of local, district, provincial and national educational staff and systems to assimilate such major changes.
- Teacher training and support
    - ED-LINKS should have had a deeper appreciation of the role of informal systems in decision-making; as a case in point, it should have more rigorously promoted the selection of teachers for training on the basis of merit; a logical approach would have been to create parent-teacher or other community groups, for example, that would have a stake in a transparent selection process.
    - ED-LINKS could have introduced systems of formative and summative assessment of student and teacher performance as part of routine monitoring, using measurement that would have supported positive change in both the classroom and the educational system by teachers teaching to a different test.
    - The project missed an opportunity to promote the use of EMIS to create better links among teacher in-service programs, student assessments and exams. The project's commitment to working closely with government and the apparent good will that government officials at all levels had for the project suggest that ED-LINKS enjoyed a position from which it could successfully have advocated for such change.
    - When funding had to shift to address the exigencies of floods and IDPs, ED-LINKS could have scaled back on activities that were not the result of the project's previous investments. It could have enabled FATA to support its Master Trainers to conduct crucial teacher training, or make it possible for already-prepared in-service teaching guides to be printed and distributed, or for educational software to be reproduced and sent to project participants.
- Governance reform
    - ED-LINKS was overly optimistic in its assessment of the capacity of those responsible for the EMIS at the district level to make needed changes, either because of inadequate access to

needed hardware and technology or because the basic capacity of staff was often relatively low and/or they were operating within a system in which data did not necessarily flow easily.

- The project would have benefited from choosing governance reform efforts that were tied closely to the institutions and systems the project was trying to change or develop. It would have been beneficial, for example, for ED-LINKS to have focused on systemic change surrounding student assessment innovation.
- ED-LINKS' outcomes would have benefited from having strong systems in place for institutionalizing sustainability. USAID might have been able to help negotiate the inclusion of budget line items by national, provincial, and district stakeholders. The project could have developed a broader coalition of partners that could contribute through formal advisory and steering committees that had budget and decision-making authority. Perhaps Pakistan's tertiary education institutions could have been tapped much more aggressively than they were, to play a role. Whatever the mechanisms, ED-LINKS' lack of a much more systemic approach to the institutionalization of interventions mitigates against the potential of many of them being sustained.

With regard to this critical issue of sustainability and tertiary education institutions, ***Appendix 15*** provides a possible option for USAID to explore as it looks back at ED-LINKS and forward to a new generation of educational programming in Pakistan.

Recommendations

Key recommendations that come from this performance evaluation of ED-LINKS are summarized below, organized primarily around the topical focus of this report. Together they constitute important lessons learned for application in any follow-on or similar educational programming undertaken by USAID. Broad recommendations that emerge from ED-LINKS include the following:

- ***Be realistic***: Frame activities based on a realistic assessment of capacity and the environment in which the project must operate. For example, non-English speaking education managers may not understand manuals in English, may not have electricity to run computers, and may face rapid job turnover.
- ***Maximize synergy***: Choose interventions that genuinely complement each other, rather than those that might add value because they are inherently worthwhile, but do not particularly contribute to other results sought. For example, place labs in schools where teachers will receive training needed to support the use of those labs and who will receive in-depth subject-related training.
- ***Institutionalize sustainability***: Leverage public and stakeholder group interests. Build, when possible, on that which government already supports. For example, incorporate student performance assessments into EMIS systems cautiously, with provincial government backing. Engage in a high-level policy dialogue to create a shared vision and framework for a systems approach to change that can be institutionalized and sustained. Consider working through established higher education structures to support long-term sustainable system change.
- ***Make monitoring and evaluation core to implementation***: Set timelines for initiation and completion of project M&E activities such as data gathering for a baseline for evaluating impact. The failure to conduct the crucial and anticipated baseline study of student and teacher performance not only made the strongest impact evaluation impossible but also jeopardized overall implementation of a sound monitoring effort tracking key indicators. Lack of such a baseline study represents a significant lost opportunity to help move forward the agenda for improved education quality in Pakistan.

Student learning and the learning environment

- ***Formative and summative assessment activities*** were among ED-LINKS' most interesting and potentially powerful innovations introduced to educators. Accordingly, support the improvement of student assessment systems and the ability of teachers to link standards-based curriculum with formative and national exams, including the use of learning objectives and a standards-based curriculum. Student assessment knowledge such as how to give and mark formative exams should be included in in-service teacher professional development programs. Changes to provincial- and district-level exam systems should be addressed separately, since they involve a broader group of stakeholders and different issues from classroom teaching and practices.
- ***Provision of computer and science labs*** should continue, but only when placed in facilities that have appropriate infrastructure, including access to electricity, and when linked to teacher training in their use.
- ***Creation of classroom- and school-based libraries*** such as those established in ICT and FATA should be included in any literacy program, but should be aligned with essential support such as adequate physical facilities, and training in their use to avoid wasting resources.
- ***Printing and distribution of prepared materials*** should be supported, as should the publication and distribution of already prepared teacher resource guides developed by AKU-IED and classroom curriculum such as math, English and science CDs developed by TRC; this would capitalize upon the investment that ED-LINKS made in these and offset a very real loss.
- ***Testing the best of ED-LINKS' activities*** within a sample of schools should be considered to learn what works best, what could be improved, and how to scale up to reach large numbers of schools at the lowest possible cost.

Teacher training and support

- ***Continue to support in-service teacher professional development*** and the training of education managers and head teachers; continue to build the capacity of provinces to undertake teacher in-service training. ED-LINKS' model of professional development in large measure does represent global "best practice" in educator professional development linked to improved student outcomes; in this model collaborative leadership and student-focused teaching in the classroom predominate.
- ***Build on ED-LINKS' teacher training model*** that integrates pedagogical skills, subject knowledge, and the use of classroom strategies for effective teaching. The model views teacher training holistically, encompassing training for education managers and administrators to create a supportive learning environment for teacher development and training change. The workshop model alternates workshop training with classroom practicum experience. Consideration should be given to organizing decentralized courses that are more accessible to teachers.
- ***Mainstream teacher training using school-based mentors*** for cluster schools, which circumvents issues of hierarchy between college-level and school-level participants, and more efficiently maximizes teacher participation rates, especially for women.
- ***Promote merit-based selection for teacher training*** to minimize non-transparent means of selecting training participants for workshops; encourage gender-sensitive selection to maximize the potential for women to participate. Build on the practice of inviting DOs and head teachers to participate in the selection of teachers, and do competency testing to screen Master Trainers.

This technical approach would help build ownership of in-service training and enhance sustainability.

- ***Expand AKU-IED's community of practice model*** for Master Trainers to facilitate scale-up as curriculum, syllabus or exams change and new teacher-training materials need to be developed.
- ***Support the creation of teacher in-service training materials*** that allow provincial PITEs and BoCs to have access to material developed by Master Trainers within their own provinces, and piloted in schools with teachers.
- ***Benchmark innovations and interventions*** in different domains and conceptual frameworks that are strategically tied to a broader policy vision. Adopt benchmarks that link everyday practice, research and vision/goals. In teacher training, for example, train teachers to do formative student learning assessments at the middle school levels (6-8) - not at 9th grade and above unless it is done with careful consideration of the likely impact on Exam Board results. For education managers, benchmarking could focus on managing teachers as "transformational leaders" at schools that are teaching to the Exam Boards.
- ***Combine education management training with in-service training*** that uses a school-based capacity-building, mentorship model to impart both pedagogical and subject-specific content. This is a variation of the whole-school approach, which also includes education management structures up to the EDO/DEO/ADO level as the unit of change.

Governance reform

- ***Ensure national and/or provincial budget line-item support*** for successful innovations such as science clubs, science and computers, labs, and EXCEL camps that when in place, were all considered useful and were highly appreciated by both students and teachers; these were never adequately institutionalized within the government system to become broadly sustainable since minimal or no provision was made for maintenance and support of programs, materials, equipment.
- ***Secure the support of governments*** for in-service teacher training using the ED-LINKS mentoring model, which should be considered an on-going activity.
- ***Stimulate a high-level policy dialogue/***creation of an inclusive steering committee to create a vision and framework for a systems approach to change that can be institutionalized; change models need to reflect the multiple and shifting layers of agency within the system. Engage with government at the federal and provincial levels to determine what it is eager and willing to do to bring about the changes it sees as essential to the nation's future; determine how USAID can complement those priorities and government's concrete commitments, as ED-LINKS was able to do with its EMIS work.
- ***Support policymakers and education managers to continue to use EMIS data***, whether in soft- or hard-copy formats. Explore the politically sensitive incorporation of student performance data into the EMIS.
- ***Continue capacity development***, focusing on lower and middle levels of the system (rather than on secretaries of education, who are in elected positions with frequent turn-over). Concentrate attention on those institutions where implementation decisions are made.
- ***Increase management skills of education officials***—including financial training for education managers and head teachers—since they are often appointed on the basis of seniority and, to some extent, political networks, and have little formal training in management. Continue training in data-driven decision-making.

Management

- ***Consider substantial changes in a project carefully***. In ED-LINKS, with funding cuts, at the grassroots level some participants perceived the project, and USAID, as breaking commitments to provide promised school interventions such as computer labs. The change in promised interventions fueled suspicion of USAID's good will and intentions.
- ***Consider reducing the number of activities rather than targets*** if cuts must be made. Keep at least one senior manager focused on original project objectives.
- ***Promote decentralization***: Pay greater attention to the diffusion of expertise, (i.e., placing subject content specialists for teachers at the district level and not just the provincial level).

Monitoring and evaluation

- ***Place monitoring and evaluation at the heart a program****:* Plan and execute M&E activities to be sure that information is in place that will a) provide formative assessment feedback and b) allow the project to evaluate the impact of its activities. ED-LINKS' failure to lay the foundation for assessing impact of improved teaching on student performance represents a significant lost opportunity to help move forward the agenda for improved education quality in Pakistan.

Sustainability

- ***Institutionalize sustainability*** by building governmental or other institutional ownership into a project, with firm organizational, management and financial commitments up front; ED-LINKS demonstrated that not enough high-level commitments for the sustainability of project interventions were in place at project start-up. USAID should consider working through established educational higher education structures to create an entity such as a "Center for Applied Educational Studies" to bring about sustainable positive change over time. A fuller description of this recommendation is provided in ***Appendix 15***.

Concluding Remarks

ED-LINKS presented a well-conceived and innovative design for education change in Pakistan. It laid out a bold vision for establishing vital links among education governance reform, teacher training and student performance. If sustainability is the standard by which the investment of $55 million for systemic change is gauged, however, then ED-LINKS has been largely unable to demonstrate what, and how much, it has meaningfully changed.

Student learning and the learning environment? Contributions were made, but there are no guarantees that school and classroom enhancements will last. ***Formative and summative assessment systems?*** While these comprise a powerful model for fundamental education transformation, ED-LINKS missed the mark by providing a complicated intervention that overestimated the absorptive capacity of educators and the formal system. ***Teacher training and support?*** While the ED-LINKS mentoring model is a strong one that introduced important innovations, the institutional infrastructure and needed government budgets to support essential future training simply are not in place. ***Governance reform?*** It appears that PITEs will retain at least some project-initiated changes and that EMIS will do so as well. The impact of improved access and use of information on secondary education, however, is hard to measure and unclear.

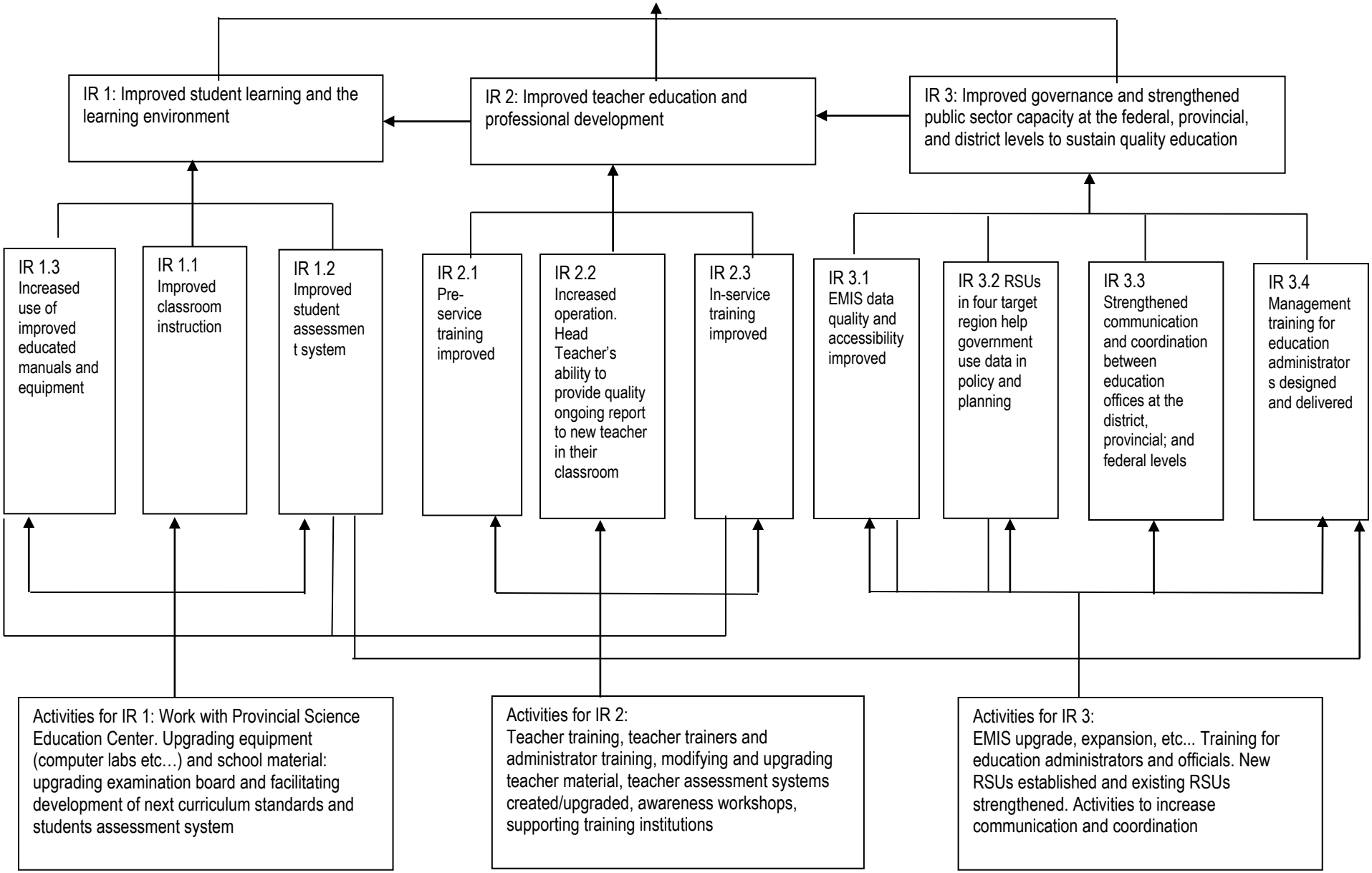
Finally, in an age when USAID and educators globally are committed to evidence-based evaluation, ED-LINKS cannot credibly demonstrate that its ultimate link—the link between improved teaching and improved student performance—actually exists. This lapse contributes to the conclusion of this

evaluation that while ED-LINKS brought great promise to the education sector, took on challenging problems, and demonstrated some important ways forward, it must carry heavy responsibility for missing an extraordinary opportunity to generate, and document, substantial and significant change through sustainable initiatives to improve the quality of education in Pakistan.

Links to Learning: Education Support to Pakistan (ED-LINKS)

APPENDICES

Appendix 1: ED-LINKS Results Framework



Appendix 2: ED-LINKS Final PMP, Geographic Scope and Timeline

Table 10: ED-LINKS Core Activities: Sindh and Balochistan Final PMP & Achievements
(Data for ICT included in many results; PMP for FATA is a separate document with a different set of indicators.)

Indicator	Target	Cumulative Progress (to September 2011)
IR 3.1 Improved student learning and learning environment		
IR 3.1.1 Improved student learning and the learning environment		
3.1.1.1 Difference in student performance favoring ED-LINKS students versus non ED-LINKS students	LOP: 10%	Overall percentage of ED-LINKS students performing satisfactorily across English, mathematics and science is 9.7% higher than students performing as non-Ed-LINKS schools
3.1.1.2 Percent of schools that are using science and computer labs	LOP: 60% of schools	• 100% of schools with science lab enhancement are using labs. • Teachers' use at least once/week increased from 40% to 100% (Grades 9-10), 10% to 70% (Grades 6-8) • 96% of schools with ED-LINKS computer labs use them • More than 90% of teachers interviewed use computers at least once/week
3.1.1.3 Percent of schools in which student performance improves	LOP: 30% of schools	60% of sample schools showed improvement in overall student performance from 2008 to 2010
3.1.1.4 Number of science labs equipped and made functional	LOP: 40 science labs	• 41 lab enhancement packages provided to secondary schools • All schools with science lab enhancement using lab
3.1.1.5 Number of computer labs established	LOP: 53 computer labs	• 53 computer labs established (23 desktop, 30 mobile computer labs)
3.1.1.6 Number of teachers, head teachers and BoC and PITE staff trained to use IT skills and to sustain use of computer labs in schools	LOP: Teachers: 300; Head Teachers: 100; BoC staff: 20; PITE staff: 20	• Teachers: 219; Head Teachers 79; BoC staff: 14; PITE staff: 12
3.1.1.7 Number of science and math kits provided to schools	LOP: 614 math kits; 614 science kits	614 science and 614 math kits distributed
3.1.1.8 Number of students participating in the Student Exchange Program	LOP: 101 students	103 students participated
3.1.1.9 Number of EXCEL camps in math, science, English and learning technologies	LOP: 10 camps	10 EXCEL camps held
3.1.1.10 Number of districts providing funding	LOP: 10 districts	15 EXCEL camps in 6 districts held with government financial

to conduct EXCEL camps with technical support from ED-LINKS		assistance
3.1.1.11 Development of educational software for math, science and English	LOP: Software for 3 subjects	Interactive supplemental material on science, math, English ready for dissemination
IR 3.1.2 Improved classroom instruction		
3.1.2.1 Percent of project-trained teachers using new subject-specific supplemental learning materials	LOP: 30% of trained teachers	75% of interviewed teachers use these materials either always or often
3.1.2.2 Difference in the content knowledge and/or pedagogical skills of teachers favoring ED-LINKS versus non-ED-LINKS teachers	LOP: 10%	Overall difference between 2 types of schools in percentage of teachers performing satisfactorally - 36.9%
IR 3.1.3 Improved student assessment systems		
3.1.3.1 Number of districts in which formative student assessment systems are introduced	LOP: 22 districts	3,497 teachers in 22 districts oriented to National Curriculum 2006
3.1.3.2 Number of project schools using formative assessment systems	LOP: 300 schools	Use of assessment tasks found in 341 schools
3.1.3.3 Number of exam boards with staff trained for standard setting	LOP: 4 exam boards	5 exam boards
3.1.3.4 Number of trainers from IBCC and exam boards trained	LOP: 20 staff members	23 staff members trained
3.1.3.5 Number of district education offices with capacity built to develop, mark, analyze standards-referenced summative tests	LOP: 22 district education offices	22 district education offices with 504 district exam committee members trained; 126 exam papers developed; 1,703 markers trained
IR 3.1.4 Increased use of classroom materials and equipment		
3.1.4.1 Percent of project schools in which teachers use project-provided science lab equipment	LOP: 60% of supported schools	All schools with science lab enhancement are using science labs; teachers using at least once/week increased from 40% - 100% (Grades 9-10) and 10%-70% (Grades 6-8)
3.1.4.2 Number of students and teachers trained to develop science projects	LOP: 40 students, 38 teachers	38 teachers, 45 students trained
3.1.4.3 Number of science clubs established	LOP: 300 science clubs	536 science clubs established
IR 3.2. Improved teacher education and professional development		
IR 3.2.1 Improved teacher education and professional development		
3.2.1.1. Number of teachers trained by Master	LOP: 5,000 teachers	5,017 teachers trained and 532 teachers oriented (mathematics,

Trainers/resource persons including PITEs & BoCs		science, English)
3.2.1.2 Number of teachers participating in US-based Teacher Attachment Program (TAP)	LOP: 43 teachers	25 teachers participated; 22 participants in first TAP follow-up; 23 participants in second TAP follow-up
3.2.2.1 Number of officials and administrators trained in Education Leadership & Management (ELM)	LOP: 766 officials and administrators	757 officials and administrators trained; 574 Head Teachers and 183 education officials trained
IR 3.2.3 In-Service training improved		
3.2.3.1 Number of Master Trainers/Resource Persons trained	LOP: 380 Master Trainers/Resource Persons	359 teacher educators trained and 90 teacher educators oriented (mathematics, science, English)
3.2.3.2 Development of in-service teacher training materials for teachers from Grades 6 to 10	LOP: Teacher training materials for math, science, English, IT)	15 teacher resource books developed; CD on low cost/no cost material developed and copies distributed in 495 ED-LINIKS selected schools
IR 3.4 Governance reforms supported and public sector capacity strengthened		
IR 3.4.1 Improved governance and strengthened public sector capacity in educational budgeting and administration		
3.4.1.1 Development of a framework for education-sector plan for Balochistan	LOP: 1 framework	Framework completed
IR 3.4.2 EMIS data quality and accessibility improved		
3.4.2.1 Number of educational managers using EMIS data for planning	LOP: 100 educational managers/supervisors	Reporting modules (software) completed and distributed by education departments; 211 officials oriented on the use of EMIS data
3.4.2.2 Number of regions in which database coding scheme is synchronized to meet NEMIS standards	LOP: 3 regions (Sindh, Balochistan, ICT)	Database coding scheme is synchronized in 3 regions
3.4.2.3 Improved work practices and procedures to support Annual School Census (ASC)	LOP: Improved ASC practices	Guidelines ASC published; variety of data-related tasks completed; EMIS and IT equipment and networks installed; orientations held
3.4.2.4 Number of district education staff oriented as EMIS data collectors	LOP: 1,720 data collectors trained/oriented	1,133 education officials trained/oriented on ASC data collection; 886 data collectors oriented on ASC data collection forms
3.4.2.5 Number of provincial and district education offices equipped with computers	LOP: 2 provincial and 22 district education	7 provincial/federal and 27 district education offices equipped with computers/accessories; NEMIS and AEPAM also equipped

and related accessories	offices	
IR 3.4.3 RSUs in three regions help government use data in policy and planning		
3.4.3.1 Number of studies to identify gaps and challenges in existing policy implementation related to teacher education and education management	LOP: 4 reports	4 reports completed
3.4.4.1 Recommendations to improve communication and coordination between district education offices and provincial teacher training institutions	LOP: Policy recommendations for improved coordination between provincial teacher training institutions and district education departments	Recommendations compiled from policy studies, above
IR 3.4.5 Increased management and budgeting capacity of education officials		
3.4.5.1 Number of education officials receiving training by AEPAM on financial management	LOP: 50 education managers trained	49 education officials trained from 22 ED-LINKS districts

Table 11: ED-LINKS: Intervention Provinces and Districts

Province/Region	Number of Districts/Agencies
Sindh	11 out of 23
Balochistan	11 out of 28
ICT	5 out of 5
FATA	7 Agencies and 6 Frontier Regions

Table 12: ED-LINKS: Timeline of Implementation of Core Activities

Province/Region	2008	2009	2010	2011
Sindh	Yes (started in summer)	Yes	Yes	Yes (closed in Sept.)
Balochistan	Yes (started in summer)	Yes	Yes	Yes (closed in Sept.)
ICT	Yes (started in summer)	Yes (closed in fall)	No	No
FATA	Yes (started in January)	Yes (minimal)	Yes (minimal)	Yes (closed in Sept.)

Appendix 3: ED-LINKS STATEMENT OF WORK

FINAL SCOPE of WORK for an EXTERNAL PERFORAMNCE EVALUATION of the LINKS to LEARNING: EDUCATION SUPPORT to PAKISTAN (ED-LINKS) PROGRAM

I. PROJECT TO BE EVALUATED

Project Name: Links to Learning: Education Support to Pakistan (ED-LINKS)

Cooperative Agency: American Institutes for Research (AIR)

Cooperative Agreement Number: 391-A-00-08-01100-00

Agreement Value $89,999,917

Obligation Date 20 October 2007 – 30 June 2012

The Links to Learning: Education Support to Pakistan (ED-LINKS) is implemented by the American Institutes for Research (AIR). On October 20, 2007, USAID awarded a competitive five-year cooperative agreement to AIR for ED-LINKS activity ending in June 30, 2012, with a ceiling of $89,999,91. An external performance evaluation of ED-LINKS activities will be conducted from February 2012 to March 2012.

II. BACKGROUND

The objective of ED-LINKS is to improve the quality and sustainability of teacher education and student performance in targeted geographical areas of Sindh, Baluchistan, Islamabad Capital Territory, and the Federally Administered Tribal Areas (FATA). USAID has learned through its past and current programs that there is need to link the teaching and learning processes to improve quality outcomes in education particularly at the provincial and district levels. ED-LINKS comparative advantage is its approach to linking teacher education, student performance, and school governance of the public education system seamlessly. Rather than focus on vertical aspects of the education system (Asian Development Bank (ADB) focus on governance and decentralization; Canadian International Development Agency (CIDA) training teachers; and World Bank and the British Department for International Development (DfID) focus on budgetary support mechanisms), ED-LINKS support was to serve as a catalyst to help bring disparate areas of development together and reinforce the teaching, learning, and governance and provide capacity support from the national to district levels. The result would be changes at the policy and school level and result in improved educational outcome for teachers, students, administrators, and various stakeholders. ED-LINKS has three goals:

1. To improve teacher education and professional development through providing institutional and academic support that is centered on student achievement and learning outcomes.
    a. ED-LINKS will create a successful teaching force—one that has a positive impact on student performance—requires dynamic support at various stages in a teacher‘s professional career.
2. To improve student learning and the learning environment through developing systems for gaging student learning and achievement, strengthening of assessment cells at the district and provincial levels and by providing learning tools and classroom inputs aimed at improving student achievement.

a. ED-LINKS will focus on the learner and his or her ability to acquire the skills and knowledge necessary to become an active and productive citizen. EDLINKS will improve the skills of Pakistan's students in mathematics, science, computer science, and English.

3. To support governance reforms and strengthen public sector capacity at the federal, provincial and district levels to sustain quality teaching and learning.

    a. ED-LINKS will strengthen the institutional leadership and management capacity of the public education sector by capitalizing on the growing amount of political will in Pakistan for improving the public education sector by supporting several other necessary conditions for better governance and strengthened public sector capacity.

Over the last 4 years, ED-LINKS experienced 11 modifications, several of which had significant impacts on the activity and summarized below. Additional modifications can be found in Appendix A.

1. Revised Program Description (August 1, 2009).

    a. ED-LINKS enhanced program activities to continue in FATA for two additional years and expanded the scope of work in the region. The modification was made to introduce the following new activities: (1) non-structural improvements to schools; (2) greater community involvement; (3) science fairs; (4) professional development forums; and (5) educational competitions. ED-LINKS supported the Internally Displaced Persons (IDPs) in FATA, conducted EXCEL camps, delivered training to teachers in the use of locally available low and no cost instructional material and provided support to Masters Trainers in math, science, English and learning technologies instruction.

2. Expedited Response to Malakand (February 23, 2010).

    a. ED-LINKS responded to the urgent needs of the district of children affected by the conflict in the Malakand region. Beginning in 2009, thousands of families were displaced by conflict between rebel forces and the Pakistan army and a vast majority of schools were destroyed as a result of the fighting. ED-LINKS repaired 150 damaged schools.

3. Post Flood School Recovery Program (November 9, 2010).

    a. ED-LINKS helped flood affected schools in Sindh and Baluchistan and the scope of work expanded to include improving the physical condition of buildings through (1) minor repair work and supplying furniture; (2) improving the learning environment by providing student support materials, classroom libraries, math and science kits, and science aids for laboratories; and (3) orienting head teachers, School Management Committees (SMC) and teachers so that they are aware of the investment that USAID is making in their districts.\

4. Extension Period of Performance (December 31, 2011).

    a. ED-LINKS work plan extended beyond June 2011. The original work plan envisaged a clear eight month period (between October 2010 and June 2011) to complete all activities. The last three months of the project were to be solely spent on closeout activities. However, ED-LINKS was extended to focus on completing its school rehabilitation projects.

5. Urgent Response to Flood-Affected Schools in Sindh and Baluchistan (July 18, 2011).

a. ED-LINKS expanded its assistance efforts and provided support to multiple flood affected schools and increased the total number of schools to 500 (from 150 in 2010).

III. PURPOSE OF THE EVALUATION

The purpose of this performance evaluation is to systematically investigate and document the outcomes of the core programs that were implemented from 2007 to 2010 in (1) teacher education and professional development; (2) student learning and the learning environment; and (3) governance reforms and strengthened public sector capacity. The evaluation will not focus on school rehabilitation efforts. The evaluation will include activities to improve collect and analyze evidence of the degree to which the ED-LINKS has accomplished its goals in four years. This information will help assess aspects of the project that are most and least effective and how effectively the project is contributing to the improvement of the educational quality in Pakistan. The evaluation will be conducted in 2012, approximately five months prior to the end of the project, which will allow for a thorough assessment of activities as well as allow enough time to modify strategies for future proposals related to quality education. Qualitative and quantitative data will be used to illustrate the process and outcomes of improvements in teacher education, student learning, and school governance activities. In sum, the evaluation has six overarching outcomes:

1. To investigate if ED-LINKS has been effectively implemented, and whether or not it has managed to achieve the three core goals stated in the cooperative agreement;
2. To find out if ED-LINKS has made an impact on the target groups, i.e. the middle and secondary school students, the teachers and school administrators, and key government officials;
3. To assess if ED-LINKS resulted in any systematic changes in the teachers, administrators, and government officials' attitudes and practices after their association/collaboration with the program;
4. To find out if/how the numerous modifications of ED-LINKS scope of work altered the effectiveness of the program implementation; and
5. To get a better understanding of how ED-LINKS is perceived by the Government of Pakistan and other stakeholders, i.e. parents, community members and community leaders, and students themselves.

IV. STATEMENT OF WORK

The evaluation team will be tasked with addressing the five overarching questions: Additional questions can be found in Appendix B:

1. What has been the greatest improvements success in teacher education quality training, student performance and learning, and governance capacity as a result of the ED-LINKS project?
2. How successful were the ED-LINKS activities in carrying out the various programs?
3. What were the major challenges faced by ED-LINKS and lessons learned?
4. What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan?

5. What was the government's response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?

The Mission anticipates the evaluation to begin in February 2012 and last approximately 7-8 weeks. Additional time may be required for the team leader to finalize the report.

V. METHODS AND PROCEDURES

1. Kick-off meeting: The evaluation team will work with the AOTR Tech and USAID staff to finalize the work plan and discuss the data collection and analysis plan. Objectives of the interviews for major stakeholders will be finalized. In addition, a communication strategy and plans for data collection and analyses, including in-depth interviews of technical documents and interviews, will be discussed and finalized among team members.
2. Self-assessment: The evaluation team will prepare a self-assessment of the ED-LINKS program, based largely on the general questions included in Appendix B. This report will be provided to the evaluation team as part of the background materials.
3. Review of background documents/materials: The following documents will also be provided to the evaluation team. Other documents may be added or requested as needed or deemed appropriate.

   a. ED-LINKS cooperative agreement, amendments and approved proposals;

   b. ED-LINKS semiannual and annual reports;

   c. ED-LINKS annual management reviews;

   d. ED-LINKS performance monitoring plan;

   e. Selected ED-LINKS publications;

   f. Selected ED-LINKS research and technical reports; and

   g. ED-LINKS country program evaluations.

4. Interviews: The evaluation team will interview selected USAID staff, including staff from other relevant offices. The team will also interview ED-LINKS staff at AIR headquarters and field-level staff in Pakistan. Finally, staff from other cooperating agencies, particularly those that may have partnered with ED-LINKS, multinational groups such as World Bank, donors, selected provincial ministries of education, and participants of the ED-LINKS program will also be interviewed by the evaluation team.

   Interviews with U.S.-based USAID or ED-LINKS staff will be conducted face-to-face; however, it is expected that some interviews may need to be conducted via conference call.

5. Field Visits: The evaluation team will travel to each province to visit ongoing ED-LINKS subprojects. Likely illustrative provinces to be visited include: Sindh, Baluchistan, Islamabad Capital Territory, and the Federally Administered Tribal Areas (FATA). The selection of the above provinces was determined by the degree of local Mission support, level of

resources invested in the ED-LINKS program, and the size and uniformity of the provincial projects.

It will be the responsibility of the evaluator to propose a detailed evaluation methodology, including data collection protocols and analytic techniques. The ED-LINKS evaluation will be an end-of-project, summative evaluation that will include recommendations for improvement of future activities. It will employ a mixed method design to collect and evaluate the data and evidence necessary to address the fundamental evaluation questions. Because the evaluation will rely heavily on exitsing data that have been collected by program management, there must be a data quality assessment component to the methodology that verifies reliability. USAID recognizes that data limitations and feasible methods of collecting data may significantly impact the analysis. The evaluation methodology should conform to the USAID evaluation strategy, specifically the criteria for performance evaluation. The evaluation methodology will use both qualitative and quantitative data to address program outcomes, implementation issues, perceptions of participants and stakeholders, and the degree to which the targets have been achieved. The evaluation will provide evidence to answer fundamental questions about the outcomes of the program. Reliable quantitative and qualitative data should be collected and analyzed as appropriate. Data should be disaggregated by gender where possible.

The final evaluation report will present summative evidence to determine what the program has achieved, how the program is implemented, how it is perceived and valued, and whether expected results are occurring. Methodological or data limitations should be explicitly stated in the evaluation report.

(VI. Implementation)

VII. DELIVERABLES

1. Methodology and Instruments – A clear description of the evaluation team's approach. Instruments that will be developed to assess the ED-LINKS activities by the evaluation team consultants. These instruments should be completed at the start of the evaluation to ensure results are received and incorporated into the final report. Additional follow-up on results may be conducted during the field visits.

2. Work Plan (Week 1): A detailed work plan is due during the first week in the country. It should include a description of the proposed evaluation methodology and a timeline for each stage of the work. USAID will review the plan and provide feedback, including revisions if necessary, within two days. The contractor and USAID will agree on the work plan not later than two weeks after award. The work plan must be consistent with USAID evaluation policy.

3. Draft Report and Presentation (Weeks 3.5): The evaluation team will present evaluation findings, conclusions, and recommendations to the Mission and submit a draft report before departing. The draft report should take into account the verbal feedback made during the presentation.

4. Evaluation Report (Week 4): The evaluation report should describe the methodology, provide conclusions on the key evaluation questions and offer recommendations for the future. It is expected to be approximately 30–50 pages, including a five-page executive summary, with attachments as needed to clearly illustrate or highlight key points. A near-final draft should be

shared with USAID and ED-LINKS for corrections of facts and feedback. Recommendations should be those of the evaluation team as a whole. This report is primarily intended for internal USAID use in assessing the performance of the ED-LINKS Program and defining future program needs. All or parts of the report will be shared with AIR. However, any recommendations to USAID regarding future procurement issues may be kept internal to USAID. Submit final report, including evidence-based conclusions and recommendations. USAID expects a report that is clear, unambiguous, and based on sound evidence. Data tables and other information not essential to the report should be included in the appendix. The report should include the following sections:

- Executive summary – A concise summary of no more than one page that states the study's purpose, the major findings, conclusions, and recommendations
- Methodology – A clear description of the evaluation team's approach.
- Limitations – A description of the significant constraints, such as a lack of reliable or complete data that limit the ability to reach definitive conclusions.
- Findings – The findings will present the empirical facts collected during the evaluation. Detailed data tables should be included in an appendix
- Conclusions – This section should clearly state the team's conclusions relative to each question. The conclusions should be clearly based on the findings and present the team's interpretations and judgments.
- Recommendations – The team should draw on its collective experience, research literature, similar programs, and the findings of the study to propose actions for management. To ensure the evaluation is rigorous and evidence-based, there should be a clear flow from the findings, to the conclusions, to the recommendations.

5. Debriefings: The evaluation team will provide separate debriefings in Pakistan. To both USAID and ED-LINKS staff. Debriefings will be 30–40 minutes slide presentations with and time allotted for questions.

ED-LINKS MODIFICATIONS and CHANGES in TARGETS

Date	**Purpose of Modification**
Mod2 January 30, 2009	Added $20,000,000 in incremental funding which increased the sub-obligated amount in this award from $20,000,000 to $40,000,000.
Mod3 February 10, 2009	Updated the Federally Administered Tribal Areas (FATA) portion of this award by adding two geographic codes (935 and 941).
Md4 May 1, 2009	De-Obligated FATA funds $9,324,271.49 which reduced the obligated amount from $40,000,000 to $ 30,675,728.51.
Mod5 August 1, 2009	Revised Program Description to incorporate enhanced program activities.

Mod7 February 23, 2010	Revised Project Budget and Cost Share requirement. Amended Program Description to include ―ED-LINKS Expedited Response to Urgent Malakand Needs‖
Mod8 November 9, 2010	Changed the Period of Agreement of the estimated completion date to September 30, 2011. Amended Program Description to include ―ED-LINKS Post-Flood School Recovery Program‖. Added a Flood Relief Component.
Mod9 May 19, 2011	Extended the period of Performance of the Cooperative Agreement until December 31, 2011. Incorporated ―Pakinfo‖, a data system reporting requirement.
Mod11 July 18, 2011	Replaced the existing Program Description with ―ED-LINKS Responding to Urgent Needs for Flood-Affected Schools in Sindh and Baluchistan‖. Extended period of Performance from December 31, 2011 to June 30, 2011

As a consequence of these modifications, changes were also made to the activity targets. These changes are summarized below.

Major Target Changes			
Activity	**Old targets as per implementation plan submitted in Dec. 2008**	**Current targets**	**Remarks**
Number of computer labs established	400 labs	53 labs	Work shifted to FATA, Malakand and flood-affected schools
Number of teachers trained by Master Trainers/resource persons	10,000 teachers	5000 teachers	

Number officials and administrators trained in Education Leadership & Management	1000 officials and administrators	766 officials and administrators	
Number of teachers participated in US based Teacher Attachment Program (TAP)	216 teachers	71 teachers	
Malakand	NA	170 Schools (Phase I: 150 schools Phase II: 20 schools)	Responding to USAID request to address urgent needs in conflict / flood affected areas
Flood-affected area work	NA	500 schools (Phase I: 116 schools Phase II: 384 schools)	

SPECIFIC ED-LINKS EVALUATION QUESTIONS

What has been the greatest improvements success in teacher quality training, student performance, and governance as a result of the ED-LINKS project?

1. What progress has ED-LINKS made in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity improved access, quality, and sustained service delivery?

2. What are ED-LINKS s primary accomplishments from the investment of education core funds? How have core funds contributed to the overall success of ED-LINKS, e.g., have they provided innovation, tool development, scalability/replicability, field performance, leverage of field funding, other?

3. What are ED-LINKS primary accomplishments from the investment of field support? Are there specific accomplishments that have been achieved in a context of decentralized education services?

How successful were the ED-LINKS activities in carrying out the various programs?

1. What was the original development hypothesis and how has it evolved over time? What needs did ED-LINKS address and how fulfilling the terms of the project design did it meet those objectives?

2. How effective is the ED-LINKS organizational and management structure in achieving results? How does the ED-LINKS structure maintain the quality of ED-LINKS work?

3. Is the ED-LINKS management team responsive and accountable to its key clients and partners: USAID Missions and host country partners (i.e. government and NGOs)?

4. Are the systems developed by ED-LINKS for monitoring, evaluation, and knowledge application effective? How have these elements of the program supported the achievement of the overall project objective?

5. Has the USAID Missions been effective in managing the ED-LINKS activity?

What were the major challenges faced by ED-LINKS and lessons learned?

1. What specific technical approaches or products of ED-LINKS have demonstrated the greatest impact in developing teacher education and professional development; student learning and achievement, and governance of teaching and learning?

2. What is the value-added of developing teacher education and professional development; student learning and achievement, and governance of teaching and learning tools developed or refined under the ED-LINKS program? Who uses these, why, and how?

3. One of the key approaches of ED-LINKS has been to facilitate nationwide and subsequent provincial standards for primary and secondary teacher education that conform to the guidelines for the GOP‘s new curriculum with particular focus on science, math, and computer subject areas.

4. Has the investment in these teacher education and professional development activities contributed substantially to ED-LINKS ability to replicate and scale up more effectively? Do these activities inculcate best practices for encouraging learning outcomes and fostering a positive learning environment?

5. How has ED-LINKS replicated and scaled up successful technical approaches and products? What lessons have been learned about the process of replication and scale- up, particularly the transfer (applicability) of approaches and products to different provinces?

6. Compare ED-LINKS mainstreaming strategies and approaches to develop required pedagogical skills, subject knowledge, classroom delivery, creativity, improvisation, and questioning skills that would enhance the value of education with regard to efficiency, effectiveness, and sustainability in the field.

What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan?

1. What are the priority areas for future education core investments to address USAID‘s primary objective to improve literacy.

2. What components of the ED-LINKS portfolio should be maintained in their current form? What components should be retained, but modified? Are there components or approaches that are no longer needed?

3. What are the prospects and the main challenges for continued utilization of tools developed or refined under ED-LINKS after the end of this cooperative agreement?

4. What are some promising new developments in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity that should be explored in possibly future activities?

What was the government’s response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?

1. What are the priority areas for future education core investments to address USAID‘s primary objective to improve literacy.

2. How was ED-LINKS perceived by the intended beneficiaries? Where there gaps between objective results and perceptions of those results? Why?

ED-LINKS SELF ASSESSMENT QUESTIONS

ED-LINKS Intermediate Results:

Strengthened educational sector policy making and planning

Improved Capacity of Teachers and Education Administrators

Improved Access to and delivery of education services

Programmatic and Technical Accomplishments

1. What progress has ED-LINKS made in strengthening educational sector policy making and planning, and in improving the capacity of teachers and education administrators to contribute to improved access, quality, and sustained service delivery? In responding to the above questions, please focus on basic education related interventions and:

– Describe the key needs/barriers/gaps at the beginning of and throughout the project.

– Describe the interventions developed by ED-LINKS to address those needs/barriers/gaps.

– Provide any available documentation of the scale-up and mainstreaming and results and impact of these interventions.

– Describe the greatest challenges and/or constraints faced by ED-LINKS.

– Describe the most important lessons learned to date.

2. What are ED-LINKS primary education accomplishments from the investment of field support funds? What specific accomplishments have been achieved in the context of decentralized education services?

3. Describe interventions related to ED-LINKS work in teacher education and professional development; student learning and the learning environment; and support of governance reforms and strengthen public sector capacity at the federal, provincial and district levels to sustain quality teaching and learning.

– Describe the specific interventions in each of these areas.

– Provide any available documentation of the scale-up and mainstreaming and results and impact of these interventions.

– Describe the greatest challenges and/or constraints to working in these areas.

– Describe the most important lessons learned in each area.

Management and Implementation

1. What were the most significant structural or management challenges (e.g. with regard to project design, staffing, partnering, or funding) faced by the project? How were they addressed or overcome?

2. How would you describe your relationship with USAID and specifically the ED-LINKS management staff at USAID? How has this helped/hurt the achievement of project results? How would you improve ED-LINKS management at USAID?

Monitoring and Evaluation

1. How effective are the systems developed by ED-LINKS for monitoring, evaluation, and knowledge application? How have these elements of the program supported the achievement of the overall project objective?

2. What are the issues, challenges, and lessons learned in monitoring, reporting, and operations research to support the overall accomplishment of the ED-LINKS objectives? What is ED-LINKS doing to ensure sustainability of its activities?

3. Where does the project see the best chances for sustainability and what steps are being taken to focus on sustainable activities?

Partnerships

1. Describe key partnerships ED-LINKS has forged to carry out activities. What have been the challenges? How has ED-LINKS maintained communication with partners and how would you change management of partnerships?

Lessons Learned

1. What specific technical approaches or products of ED-LINKS have demonstrated the greatest impact in developing improving the capacity of teachers and education administrators to contribute to improved access, quality, and sustained service delivery? Use data/indicators to demonstrate impact

2. How has ED-LINKS replicated and scaled up successful technical approaches and products? What lessons have been learned about the process of replication and scale-up, particularly the transfer (applicability) of approaches and products to different provincial contexts?

3. What ideas or interventions did ED-LINKS pursue that did not achieve anticipated results? What has been learned from this?

Future Strategic Directions

1. What are the gaps in technologies, methods, or tools needed to further develop the field of teacher education and professional development; student learning and the learning environment; and governance reforms and strengthens public sector capacity in developing country education settings? How is ED-LINKS positioned to contribute to filling these gaps?

Work Management Plan and Timeline

International consultants will be in Pakistan for 30 days, the limit of their Pakistan entry visas, to carry out the evaluation. At the start of in-country planning of evaluation activities, in addition to initiating a review of the literature, two senior Pakistani team members will collaborate with the education and evaluation specialists from the U.S. to develop a detailed plan for carrying out research activities and to design the instruments to be used with different stakeholder groups. This group of four will plan logistically feasible outreach to stakeholders by teams of two in the four ED-LINKS sites of Sindh, Baluchistan, Islamabad Capital Territory (ICT), and the Federally Administered Tribal Areas (FATA).

This planning group will also put in place the design for a two-day kick-off workshop in which all team members will review evaluation objectives, the protocols to be used, and reporting methodology. The workshop will include an opportunity to test the draft instruments in the field to assess the adequacy of their scope and sequence, and to identify any unexpected issues that might arise in their use. The team will revise the questionnaires, as needed, in preparation for the roll out of evaluation research in the four ED-LINKS sites. During this first week the international consultants will have an initial meeting with USAID to ask questions, gather names of contacts to be interviewed, and review the overall design of the research effort. Team members will present this document for discussion at a second meeting with USAID.

Data collection in Balochistan (in the Quetta area), in FATA and in Sindh is scheduled to take place for one week. A team of two will travel to Quetta, while a second team of two will travel to Peshawar for work in the FATA area. The two international consultants, along with two Pakistani team members, will remain in Islamabad to conduct key informant interviews. They will subsequently travel to Karachi to conduct additional interviews. It is possible that from a base in Karachi, two Pakistani team members will conduct interviews with stakeholders from southern Balochistan. Upon their return to Islamabad, team members will interview key informants and members of stakeholder groups, as time allows.

After gathering data in the field, all team members will spend approximately six days analyzing and discussing their preliminary findings. The team will report these to USAID approximately a week after members have returned from the field. The team will submit a near-final report to USAID two days later, just before the international consultants' departure from the country. A proposed schedule for evaluation activities follows.

Key informant interviews, stakeholder group member interviews and contacts list

As mentioned previously, the information-gathering method that the evaluation team will use will be interviews that generate qualitative data regarding key elements of the core and auxiliary sets of evaluation questions enumerated in the RFQ. Stakeholder groups to be interviewed will include teachers, District Exam Committee participants, EMIS users (e.g., head teachers, School Managers, DOs and EDOs), students, parents and donors, prime implementer staff, sub-contractors, public institutions/offices. Key informant interviews will be carried out with a variety of individuals whose organizations or institutions were linked to the program to carry out specific activities. The instruments used with key informants will follow a traditional design of inquiry about substantive issues and will be geared to the questions enumerated in the RFQ and in the self-assessment tool that is being completed by AIR.

At the same time, given that time has passed since core activities of ED-LINKS ended, several of the interview protocols will focus primarily on gathering the views of project participants regarding the most fundamental issues of project usefulness and interest. A protocol for teachers, which will be customized for sub-groups of teachers who participated in various ED-LINKS trainings, at the end of this document, illustrates this approach.

The table below illustrates the potential stakeholder groups that the evaluation team would like to interview. This list is apt to grow as the team begins its work and members discover the networks of relevant individuals with whom they might meet. The team would appreciate any suggestions from USAID for expanding and detailing the list of those to be interviewed, particularly key informants.

ED-LINKS Evaluation: Timeline of Activities, June 11 – August 3, 2012	**June 11-16 (Week 1)**	**June 17-23 (Week 2)**	**June 24-30 (Week 3)**	**July 1-7 (Week 4)**	**July 8-14 (Week 5)**	**July 15-21 (Week 6)**	**July 22-August 3 (Weeks 7, 8)**
Initial planning; launch of literature review (US-based/international consultants); launch of quantitative data review; international consultants depart for Islamabad							
Quantitative data review continues; initial planning by 2 international and 2 senior Pakistani team members; kick-off meeting with USAID and formal presentation of methodology, work plan, draft interview protocols to USAID							
Deliverable: Final methodology, work plan, protocols, June 23							
Training of all team members in data collection procedures; interviews begin in four project sites; information recorded							
Field data collection continues; information recorded; data analysis begins in Islamabad; draft-near final report writing							

begins							
Data analysis continues; draft near-final report writing continues; preparation of presentation to USAID on research findings; presentation of findings to USAID							
Deliverable: Presentation of findings to USAID, July 13 (to be confirmed)							
Near-final draft report delivered to USAID; international team members depart Islamabad; USAID reviews near-final draft report and provides feedback to team;							
Deliverable: Near-final report to USAID, July 15							
International team members revise report based on USAID feedback; submits final report							
To Evaluation Team: Feedback from USAID on near-final report, by July 20 **Deliverable: Final report, August 3**							

Team Work Schedule

Day No.	Date	Day	Tasks
Day 1	17th June	Sunday	Marcia and Suzanne's arrival in Pakistan
Day 2	18th June	Monday	• Meeting with ED-LINKS
Day 3	19th June	Tuesday	• Meetings
Day 4	20th June	Wednesday	• Meeting with ED-LINKS Evaluation Team Member #1 and Evaluation Team Member #2 • First day for Team Members #1 and #2
Day 5	21st June	Thursday	• Meeting with Team Members #1 and #2 (Work on Questionnaire) • Meeting at ED-LINKS (Suzanne and Team Member #3)
Day 6	22nd June	Friday	• Work on Questionnaire • Meeting with USAID at ED-LINKS • Meeting with Team Member #1 and #2
Day 7	23rd June	Saturday	• Meeting with Team Member #1 and #2 (Work on Questionnaire, Planning of Training Workshop)
Day 8	25th June	Monday	• Training with entire team • First day for Team Members #4, #5, #6 and #7
Day 9	26th June	Tuesday	Training with entire team
Day 10	27th June	Wednesday	• Marcia and Suzanne's meeting with (AEPAM) • Marcia and Suzanne's meeting with (NEMIS) • Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with respondent • Team Members #2 and #5 departure for Quetta at 7AM • Team Members #2 and #5 Fieldwork (PITE, BEMIS) • Team Members #1 and #7 departure for Peshawar at 3 PM • Team Members #4 and #6 departure for Karachi at 10AM • Team Members #4 and #6 Fieldwork (Jamshoro)
Day 11	28th June	Thursday	• Marcia and Suzanne's meeting with (Aga Khan Foundation) • Marcia and Suzanne's meeting with (National Commission for Human Development) • Team Members #2 and #5 Fieldwork (Pishin) • Team Members #4 and #6 Fieldwork (Sanghar)
Day 12	29th June	Friday	• Suzanne's meeting with (Education Official) • Marcia and Suzanne's meeting with (CAAD) • Marcia and Suzanne's meeting with ED-LINKS (3PM) • Marcia and Suzanne's meeting with Arturo (4:30 PM) • Marcia and Suzanne's meeting with respondent (9 PM) • Team Members #2 and #5 Fieldwork (Loralai) • Team Members #4 and #6 Fieldwork (Mirpurkhas)
Day 13	30th June	Saturday	• Marcia's meeting with respondent (9 AM at Marriot) • Marcia and Suzanne's meeting with respondent (11

			AM) • Skype Call 5 PM for Marcia • Flight to Karachi at 3:30 PM for Team Members #2 and #5
Day 14	1st July	Sunday	• Marcia and Suzanne's flight to Karachi at 10 AM • Meeting and dinner for Marcia, Suzanne, Team Members #2 and #5 and 2 respondents at 8:30 PM
Day 15	2nd July	Monday	• Marcia and Suzanne's meeting with 2 respondents (9 AM) • Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with respondnet (3 PM) • Team Members #2 and #5 Fieldwork (Lasbella) • Team Members #4 and #6 Fieldwork (Nawabshah)
Day 16	3rd July	Tuesday	• Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with 2 respondents • Team Members #2 and #5 flight to Sukkur at 6AM • Team Members #2 and #5 Fieldwork (Sukkur) • Team Members #4 and #6 Fieldwork (Shikarpur)
Day 17	4th July	Wednesday	• Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with RSU (3 PM) • Marcia and Suzanne's meeting with respondent • Marcia and Suzanne's meeting with (Secretary Education) • Marcia's flight from Karachi to Islamabad at 6:30 PM • Team Members #2 and #5 Fieldwork (Jaffarabad) • Team Members #4 and #6 Fieldwork (Sukkur)
Day 18	5th July	Thursday	• Suzanne's meeting with Education Officials • Suzanne's meeting with respondent in Karachi • Suzanne's meeting with Education Minister in Karachi • Marcia's meeting with respondent on Telephone • Marcia's meeting with respondent on Telephone • Marcia's meeting with Team Member #1 at 9:30 PM • Suzanne's flight from Karachi to Islamabad at 7 PM • Return of the 3 teams from Fieldwork
Day 19	6th July	Friday	• Marcia and Suzanne's meeting with respondent (9AM at Serena) • Marcia and Suzanne's meeting with Team • Marcia and Suzanne's meeting with Arturo
Day 20	7th July	Saturday	• Marcia's meeting with Meeting with (USAID) • Team Meeting at HE Security at 10 PM
	8th July	Sunday	• Team meeting (All except Team Member #1)
Day 21	9th July	Monday	• Meeting with respondent on Skype (3:30PM) • Meeting with respondent on Telephone (8 PM)
Day 22	10th July	Tuesday	• Meeting with Team Members • Meeting with respondent at Marriot at 2PM
Day 23	11th July	Wednesday	• Meeting with respondent at 2 PM on Skype • Team Meeting at 3:30 PM at HE Security

			• Prepare draft final report
Day 24	12th July	Thursday	Prepare draft final report
Day 25	13th July	Friday	○ Team meeting at 2 PM at Serena ○ Prepare draft final report ○ Last Day for Team Members #4 and #5 ○ Analyze data and prepare exit debrief ○ Presentation of Preliminary findings from Fieldwork
Day 26	14th July	Saturday	Prepare draft final report
	15th July	Sunday	Prepare draft final report
Day 27	16th July	Monday	Departure of Marcia and Suzanne from Pakistan

FATA Work Plan

KPK Team

Work Plan

Evaluation Team Member #1 and #7

Execution Date/day	Activities/ Task	District
Day One 27-June 12	Departure for Peshawar • Meeting officers of Provincial Government	
Day Two 28-June 12	• Meeting with A.E O • Visit GCET(F) meeting with Principal, teachers, Head teachers, TAP, SEP • Visit GCET(M) meeting with Principal, teachers, Head teachers, TAP, SEP • Meeting with director FATA	Khyber Agency
Day Three 29-June 12	• Meeting with A.E O • Visit to school, meeting with Principal, teachers, Head teachers, TAP, SEP	Mohmand Agency
Day Four 30-June 12	OPEN	
Day Five 01-July 12	**Sunday**	
Day Six 02-July 12	Round table with teachers(Two) • Individual interviews	From various agencies
Day Seven 03-July 12	• Round table with Head teachers (Two) • Meeting with A E Os • Individual interviews	From various agencies
Day Eight 04-July 12	• Round table with Master trainer (One) • Meeting with academic supervisors • Individual interviews	From various agencies
Day Nine 05-July 12	• Departure for Islamabad	

Appendix 4: THE EVALUATION'S '5 + 20' QUESTIONS

Five Overarching Outcomes in RFQ

1. What has been the greatest improvements success in teacher education quality training, student performance and learning, and governance capacity as a result of the ED-LINKS project?

2. How successful were the ED-LINKS activities in carrying out the various programs?

3. What were the major challenges faced by ED-LINKS and lessons learned?

4. What are the future strategic directions for teacher training, student performance, and school governance by the Government of Pakistan?

5. What was the government's response to ED-LINKS and what was the impact of devolution to the provinces? Is there evidence that the government systemically implemented changes as a result of ED-LINKS activities and, if so, will those changes be sustained?

"Twenty Questions"

To elaborate these core questions, USAID specified 20 detailed questions to be addressed by the evaluation:

1. What progress has ED-LINKS made in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity improved access, quality, and sustained service delivery?
2. What are ED-LINKS s primary accomplishments from the investment of education core funds? How have core funds contributed to the overall success of ED-LINKS, e.g., have they provided innovation, tool development, scalability/replicability, field performance, leverage of field funding, other?
3. What are ED-LINKS primary accomplishments from the investment of field support? Are there specific accomplishments that have been achieved in a context of decentralized education services?
4. What was the original development hypothesis and how has it evolved over time? What needs did ED-LINKS address and how fulfilling the terms of the project design did it meet those objectives?
5. How effective is the ED-LINKS organizational and management structure in achieving results? How does the ED-LINKS structure maintain the quality of ED-LINKS work?
6. Is the ED-LINKS management team responsive and accountable to its key clients and partners: USAID Missions and host country partners (i.e., government and NGOs)?
7. Are the systems developed by ED-LINKS for monitoring, evaluation, and knowledge application effective? How have these elements of the program supported the achievement of the overall project objective?
8. Has the USAID Missions been effective in managing the ED-LINKS activity?

9. What specific technical approaches or products of ED-LINKS have demonstrated the greatest impact in developing teacher education and professional development; student learning and achievement, and governance of teaching and learning?
10. What is the value-added of developing teacher education and professional development; student learning and achievement, and governance of teaching and learning tools developed or refined under the ED-LINKS program? Who uses these, why, and how?
11. One of the key approaches of ED-LINKS has been to facilitate nationwide and subsequent provincial standards for primary and secondary teacher education that conform to the guidelines for the GOP's new curriculum with particular focus on science, math, and computer subject areas.
12. Has the investment in these teacher education and professional development activities contributed substantially to ED-LINKS ability to replicate and scale up more effectively? Do these activities inculcate best practices for encouraging learning outcomes and fostering a positive learning environment?
13. How has ED-LINKS replicated and scaled up successful technical approaches and products? What lessons have been learned about the process of replication and scale- up, particularly the transfer (applicability) of approaches and products to different provinces?
14. How have ED-LINKS mainstreaming strategies and approaches helped develop required pedagogical skills, subject knowledge, classroom delivery, creativity, improvisation, and questioning skills that would enhance the value of education with regard to efficiency, effectiveness, and sustainability in the field?
15. What are the priority areas for future education core investments to address USAID's primary objective to improve literacy?
16. What components of the ED-LINKS portfolio should be maintained in their current form? What components should be retained, but modified? Are there components or approaches that are no longer needed?
17. What are the prospects and the main challenges for continued utilization of tools developed or refined under ED-LINKS after the end of this cooperative agreement?
18. What are some promising new developments in teacher education and professional development; student learning and the learning environment; and supporting governance reforms and strengthening public sector capacity that should be explored in possibly future activities?
19. What are the priority areas for future education core investments to address USAID's primary objective to improve literacy?
20. How was ED-LINKS perceived by the intended beneficiaries? Where there gaps between objective results and perceptions of those results? Why?

Appendix 5: Research Design and Evaluation Methodology

Evaluators used a mixed methods approach for the performance evaluation of ED-LINKS, collecting evidence from a variety of sources to triangulate findings. Sources and data collection methods included:

- Interviews with 219 individuals, either individually or in small groups, 216 of whom were in Pakistan - almost all in Sindh, Balochistan, FATA or ICT.
    - Informal surveys of and group discussion with a small sample of male and female ED-LINKS teachers (91), Master Trainers (28), and students (14) currently enrolled in ED-LINKS schools, particularly in FATA, Sindh and Balochistan.
    - Meetings with 32 participants in Educational Leadership and Management workshops and 15 individuals involved with the Education MIS in all four project areas.
- Key informant interviews with 57 officials associated with a variety of organizations and institutions in Pakistan that are involved in the education sector or with ED-LINKS specifically. These included ED-LINK senior management team members and Education District Officers, District Officers, Assistant Education Officers, Assistant Development Officers, and officials working with institutions including PITE, BoC, BEMIS, RSU, AKU-EB, AKU-IED, TRC.
    - Interviews with seven individuals currently or formerly affiliated with USAID.
- Primary databases maintained by AIR of all participating ED-LINKS institutions and schools.
- Secondary data from a wide range of documents including over 200 reports, memoranda, briefing papers, articles, books.
- Eyeball analysis of qualitative data.
- Quantitative data analysis using a variety of descriptive and inferential statistical techniques. (See note on quantitative analysis in ***Appendix 13***.)

Document Review

USAID provided the evaluation team with approximately 150 ED-LINKS-related documents to inform the evaluation. This was complemented by another 65 documents identified and reviewed during the evaluation. One key document that was not made available to the JBS evaluation team prior to arrival in-country was a self-assessment of project implementation prepared by the ED-LINKS team. ED-LINKS senior managers did provide this, however, later in the evaluation period.

Qualitative Data, Interviews and Instruments

To provide an evidence-based holistic picture of ED-LINKS that would complement available quantitative data and their associated reports and analyses—and to help mitigate the constraints detailed above—the JBS/Aguirre evaluation team carried out numerous in-depth interviews with senior and mid-level Pakistani and US officials. These included teachers, Master Trainers, Education Officers (e.g., EDOs, DOs and ADOs), EMIS users, participants in Education Leadership and Management courses, and students. Interviews were conducted with individuals and with small groups of stakeholder group members. One semi-structured key informant questionnaire and five participant questionnaires geared to different stakeholder groups were developed and shared with USAID prior to commencement of field research.

JBS/Aguirre's eight team members conducted a total of 219 interviews of stakeholders across the project areas. Roundtable discussions were also conducted to provide a forum for interaction and debate among students, teachers and Master Trainers. Qualitative data collection used, as appropriate, an Appreciative Inquiry approach built around the core questions of "What worked?" and "What would even better look like?" Interviews also include a "case incident" protocol that helped in the generation of grounded, evidence-based, specific observations from interviewees, rather than merely generic observations.

Qualitative Data Analysis Methods

- Narrative analysis of "case incident" interviews
- "Case incident" interviews, a narrative approach to research, was also used with some key informants – education managers, head teachers, teachers, and students – and members of the evaluation team to provide more meaningful analysis of issues within or related to the ED-LINKS project. Narratives can illuminate human actions, beliefs, and complexities in ways other methodologies and methods cannot, and case incident or critical event interviews in particular can highlight the complexity and human centeredness of change experiences. Often, such information can be used to problem solve, by shedding light on the interaction of worldviews and the reality of experiences. The validity and reliability of narrative is associated with measures such as access, the trustworthiness of notes, verisimilitude, authenticity, familiarity, transferability, and economy, rather than the stability of measurement. Narrative coding was used to analyze critical incidents narratives and to examine phenomena around educational interventions in Pakistan more holistically.
- Surveys and semi-structured questionnaires

  Descriptive analysis was used for the survey data, which included structured and semi-structured questions. Responses were categorized by stakeholder groups. Because a proportional sampling method was used, no statistical analysis was performed.

Data recording and compilation

Due to internet access problems, lack of electricity to recharge laptops, and personal security concerns over recording sometimes sensitive information, most evaluation team members chronicled the substance of interactions with those interviewed, through handwritten, reflective field notes. Senior evaluation team members participating in group discussions often probed for additional information, observations and insights. Recordings and hand-written notes from the team members in the field were enhanced by their participation in in-person debriefings held in Islamabad following fieldwork.[92] These techniques contributed to the collection of more complete, detailed and thorough data to supplement interviews, roundtable discussions, and surveys.

Hand-written notes from individual team members were particularly useful to better understand gender differences, since male and female evaluation team members were not always comfortable talking about differences in perceptions in mixed-gender settings. The female evaluator in FATA, for example, perceived more obstacles for women teachers to participate in teacher training workshops than the male evaluator, although they both formally interviewed the same people. In-person debriefings enabled some team evaluation members to discuss issues that they perceived as sensitive, or that required some level of cultural interpretation. This included issues around teacher qualifications, security, management practices, and paying off education managers for favors such as being selected for workshops or not being held accountable for being present at school. Such practices may involve unwritten "norms" that impact the functioning of schools, but are difficult to discuss with or ask participants about directly. Reflective fieldwork and in-person debriefing allowed the team to capture some of this information, even though it was not part of official interviews.

[92] One team member made extensive recordings around his work in FATA that includes details – such as requests for e-libraries, uniforms, and psycho-social guidance – that were not included in the main report due to space limitations.

Questionnaires used in the field with different stakeholder groups, as well as the key informant instrument, appear in *Appendix* 6. The core substance of the field interviews appears in the summary tables in ***Appendix 14***, which are organized around stakeholder groups.

Quantitative Data Quality Check

JBS/Aguirre undertook data validation procedures to determine the reliability of extant databases, including checks to determine, to the extent possible, such issues as variable distributions which corresponded to expectations, student performance data consistency with proficiency rates, teacher characteristics from administrative and teacher surveys, and the usefulness of databases for evaluation and their disaggregation by gender. These data reliability checks sought to determine whether or not the results of analysis already done were well founded and whether or not other analysis might be carried out to support future project planning. Datasets were catalogued and efforts made to assess data quality recorded in order to clarify the strengths and limitations of these data. (See ***Appendix 13*** for data catalogue.)

The assessment of data quality included the use of two data quality assessment frameworks: (1) the Data Quality Triangle (reliability, validity and timeliness); and (2) a set of USAID Operational Definitions of Data Quality (validity, reliability, completeness, precision). These frameworks were used to guide the use of data in analysis and inform the issue of qualitative data collection about data collection processes and potential gap areas. Data reviewed included that available from AIR's studies regarding impact, math and science kits, supplemental materials for teachers, computer labs and science lab enhancements. JBS/Aguirre also explored the potential for assessing the impact of changes in teacher classroom behavior. An in-depth econometrics analysis of the evaluation methods was undertaken, and an alternative general model was put forth by the review team.

Among the challenges encountered during the evaluation process was the absence of baseline data as well as limitations regarding assessments of student and teacher performance, the different units of analysis of various data sets and the small size of some data sets for drawing meaningful conclusions. Nonetheless attempts were made to link or triangulate databases by the most disaggregated unit of analysis (schools, teachers) and where possible, to assess data regarding math and science kits; computer labs; supplemental materials and enhanced science labs. Another major constraint limiting triangulations was that the only data available on student performance disaggregated at the student level were from Balochistan and Sindh provinces - the same data that AIR used in its impact study.

Methodology and Research Limitations

This evaluation has relied on purposive sampling to determine who would be interviewed. As a result, findings may not be extrapolated to the larger populations involved. Additionally, interviews, narratives, and other forms of qualitative data gathered through this evaluation are not being used to make claims of reliability or validity about any particular population, or to make claims about the reality or "truth" of a particular situation. Case study narratives, which can lead to a deeper understanding of the experienced meaning of an event for a participant, are of limited value in providing trustworthy generalizations or revealing how characteristics or impacts are distributed throughout a population. Additionally the qualitative interviews and surveys collected as part of this evaluation, while they seek to identify how ED-LINKS was perceived to operate by different participants and groups, are of limited value in claiming "objective truth," as they are forms of inquiry mediated by the interaction between the interviewer and the interviewee, or among group participants.

While the evaluation team was able to reach out broadly into all of the project areas, security issues, particularly in Balochistan and FATA, mitigated against an even fuller array of interviewees to inform the research findings.

The fact that interviews were not recorded means that reports about those interviews had to be based solely on the written notes, recollections and interpretations of interviewers, with no extant resource to which one could refer.

Particularly in the case of teachers and Master Trainers, to identify individual members of these stakeholder groups to invite for an interview, the team had to depend on ED-LINKS to provide names and contact information. When feasible, the team selected names randomly from lists in the ED-LINKS office. Actual contacting of individuals, however, was carried out by ED-LINKS staff to expedite efficiency, given the short time for this evaluation and possible credibility issues that could plague evaluation team members since they might well be unknown to the community. This mode of outreach could compromise candid sharing by those interviewed, no matter how clear team members might be at the beginning of an interview or meeting about their independence from the project.

A full description and discussion from a statistical perspective, *Evaluation and Statistical Review*—reviewing *Data Assessment, Modeling Framework* and *Data Catalogue* follows in ***Appendix 13***.

Appendix 6: Evaluation Instruments

ED-LINKS Evaluation

Stakeholder Group: Students

1) Have you seen any change in your teacher's teaching style in the last year or two?

2) Have you ever used a computer or science lab? If so, what did you learn?

3) Have you been in a Science Club? If so, what did you learn in it?

4) Is your classroom a more interesting place to be than it was a few years ago? Why?

5) Do you feel any difference in your school after ED-LINKS and do you feel your school is more friendly when compared to the private schools in the district?

ED-LINKS Evaluation

Stakeholder Group: Teacher

District_____

School_____

No. of years teaching_____

ED-LINKS program participated in: _____

1) My experience as a participant in ED-LINKS training helped me in my classroom teaching.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

2) My experience as a participant in ED-LINKS training helped me develop better relationships with my students.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

3) My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

4) I still use knowledge or tools in my classroom that I received during my ED-LINKS training.

Never	Very few times	Every other week	Once a week	More than once a week
O	O	O	O	O

5) Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree

O	O	O	O	O

Open-Ended Questions

6) **What did you learn, if anything, as a result of ED-LINKS training that was most useful in your teaching?**

7) **Was there anything you particularly liked about the ED-LINKS training? What was it? Why?**

8) **How, if at all, has your experience in ED-LINKS training changed you as a teacher?**

9) **What would you recommend to make the ED-LINKS training more effective and useful to teachers in the future?**

Case Incident Questions

10) **You attended an ED-LINKS training. Can you remember a situation that was very confusing?**

11) **What happened?**

12) **What questions do you have in thinking about that situation? What would you like to know?**

ED-LINKS Evaluation

Stakeholder Group: Master Trainer

District_____

School/College_____

No. of years teaching_____

ED-LINKS program participated in: _____

5) My experience as a participant in ED-LINKS' master training program helped me learn valuable new skills and knowledge.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

6) This program helped me learn how to deliver professional development programs, including developing teacher training manuals and creating course structure and content.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

7) I have been able to mentor teachers I trained.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

8) As a result of this training, I have offered advice to education officials at the school, district, or provincial level on how to improve teacher training.

Strongly disagree	Somewhat disagree	No opinion	Somewhat agree	Strongly agree
O	O	O	O	O

Open-ended questions

9) What did you particularly find valuable, if anything, about your participation in a master teacher training program?

10) Did you change your opinion about any type of teaching practice or approach as a result of becoming a Master Trainer?

11) How do you think the ED-LINKS program could have been improved?

Case Incident Questions

13) You attended an ED-LINKS program. Can you remember a situation that was very confusing?

14) What happened?

15) What questions do you have in thinking about that situation? What would you like to know?

ED-LINKS Evaluation

Stakeholder Group: Leadership and Management

District_____

School/College/Organization_____

No. of years in education_____

ED-LINKS program participated in: _____

1) What was most useful about your training?

2) Have you applied the learning in your job?

3) Do you recommend others to undertake training?

4) DO you think this training is linked to professional development of teachers and improved student learning?

5) Did your efficiency as a manager improve? How?

6) If we plan such trainings in the future, how can we improve them?

ED-LINKS Evaluation

Stakeholder Group: EMIS user (EDO, DO, ADO, etc.)

District_____

School/College_____

No. of years in job_____

ED-LINKS program participated in: _____

1) What was valuable, if anything, about your participation in EMIS training?
2) What changes did you make, if any, as a result of your EMIS training?
3) Do you report the results of your regular school site visits to EMIS cells? If no, why not? (For DOs).
4) Can you directly access the EMIS database? If not, why not? (Dos)
5) Have you used information from EMIS to advocate for more funding for your school(s), district, or the education sector? If not, why not?
6) What do you use EMIS data for, if anything?
7) How do you think EMIS data can be used more effectively by your district/province?

ED-LINKS

Key Informant Questionnaire

Please Print.

Date

Interviewer ***Location***

Interviewee Information

Name:

Position and Title:

Number of years at current post:

Organization:

Contact information: email: **Phone:**

Introduction

Evaluation of ED-LINKS activities (2007-2010)

Interviewing variety of stakeholders

ED-LINKS summary – 3 arenas of activities:

1) ***Improved student learning and the learning environment***
   - Student assessment systems, support to teachers and students in the development of science projects, math, science and English EXCEL camps, distribution of math and

science kits, establishment of science and computer labs, formation of Science Clubs, and training and exchange programs in Washington DC.

2) ***Improved teacher education and professional development***

- Teacher professional development in science, English, math and computer education, strengthening of Bureaus of Curriculum (BoCs), Provincial Institutes for Teacher Education (PITEs), and the training of teachers in the development of low and no cost teaching and learning aids.

3) ***Governance reforms supported and public sector capacity strengthened*** at the federal, provincial and district levels to sustain quality teaching and learning

- Capacity and institutional development of
  - the Academy for Education Planning and Management (AEPAM) in Islamabad,
  - The Reform Support Unit (RSU) in Sindh and
  - The Policy, Planning and Implementation Unit (PPIU) in Balochistan.
- Education managers at the school and district level received extensive professional development in
  - Academic supervision, planning, management, monitoring and budgeting and
  - Use of information technology education management.
- Education managers in workshops to help them learn how to
  - Fill out government budgeting and financial planning documents and
  - Use EMIS data in their planning, management and monitoring functions.
- Equipping of EMIS units at the provincial, district and area/agency level with hardware and software; their staff was supported to develop process and procedural guidelines, to lead the Annual School Census (ASC) and to collect, collate, manage and distribute education data.

1. As a result of the ED-LINKS, what have been the <u>greatest improvements</u> or <u>overall success</u> in

a. teacher education, quality training,
b. student performance and learning, and
c. governance capacity?

Greatest improvements or overall success in <u>teacher education, quality training</u>?

Greatest improvement or overall success in <u>student performance and learning?</u>

Greatest improvement or overall success in <u>building governance capacity</u>?

2. **On a scale from '1' to '5,' how *<u>useful</u>* did you find this ED-LINKS program for the improvement of teaching or of student achievement or of governance reforms?**

('1' = Useless '5' = Very useful)

1 Useless	2	3	4	5 Very useful
O	O	O	O	O

Why?

3. **On a scale of '1' to '5,' how *<u>innovative</u>* did you find the ED-LINKS program?**

'1' = Not innovative '5' = Very innovative

1 Not innovative	2	3	4	5 Very innovative
O	O	O	O	O

Why?

4. **If you've had a positive or interesting ED-LINKS experience, please tell me [a story] about that.**

Positive or interesting ED-LINKS experience

5. **What were the major challenges faced by ED-LINKS ?**

Major Challenges

Please tell a story (or give an example) about a challenge that was successfully addressed – or not addressed.

6. **Thinking back over the entire program, what were the most important lessons learned that might be applied to future programs?**

Most important lessons learned

7. **Thinking of your ED-Links experience, what are the future policies or "strategic directions" you would want to implement for 1) teacher training, 2) student performance, and 3) governance and capacity building?**

1) Teacher training policy

2) Student performance policy

3) Governance and capacity building

8. **On a scale from '1' to '5,' how did you find government's response to ED-LINKS?**
('1' = Very negative '5' = Very positive)

1 Very negative	2	3 Neutral	4	5 Very positive
O	O	O	O	O

Describe an example. Tell the story about government's response.

9. On a scale from '1' to '5,' how *advantageous* or *disadvantageous* was the devolution of ED-LINKS to the provinces?

('1' = Not at all advantageous '5' = Very advantageous)

1 Not at all advantageous	2	3 Neutral	4	5 Very advantageous
O	O	O	O	O

10. From your perspective, what was the specific impact of devolution to the provinces on ED-LINKS activities?

Describe an example or tell a story about the impact of devolution on ED-LINKS activities.

11. On a scale from '1' to '5,' how much systematic *change was made* as a result of ED-LINKS?

('1' = No systematic changes made '5' = Major systematic changes made)

1 No systematic	2	3 Neutral	4	5 Major systematic

changes made				changes made
O	O	O	O	O

12. If you saw evidence that the government *systematically* implemented changes as a result of ED-LINKS activities?

Describe an example or tell a story about changes the Government implemented systematically as a result of ED-LINKS activities.

13. If you've witnessed changes being made because of ED-LINKS, are those changes <u>being sustained</u> now?

Can you be specific about what has been sustained regarding:

Teacher training interventions

Student learning interventions

Governance activities, including use of EMIS?

14. Will these changes that have been sustained to now, be sustained in the future? Why or why not?

On a scale from '1' to '5,' how *sustainable* are the changes made as a result of ED-LINKS?
('1' = Totally unsustainable '5' = Very sustainable)

1 Totally unsustainable	2	3 Neutral	4	5 Very sustainable
O	O	O	O	O

Please explain your views about the <u>future sustainability</u> of Ed-LINKS activities and why you think this.

5. When we plan future programs such as ED-LINKS, how can we make them "even better"? *(Please be as specific as you can.)*

Making ED-LINKS-type programming even better

Thank you for your time and valuable insights!

Appendix 7: Background and Historical Context of Education and Reform in Pakistan

The education sector: Middle and secondary school education

Pakistan has a three-tier system of education, with responsibilities at the federal, provincial and district levels. The division of responsibilities of the federation and provinces has been defined by the country's Constitution. As of 2010 the federal Ministry of Education was largely devolved to the provinces, but a federal ministry of professional and technical training oversees higher education, technical education, primary and secondary education at the federal level, and adult literacy. All provinces have Departments of Education headed by Provincial Ministers of Education. The provinces are further divided into districts for the purpose of administration

Pakistan's education system has three segments: elementary (grade1-8), secondary (grade 9-12), and tertiary or higher education after 12 years' schooling. Elementary education is comprised of two distinct stages, primary (grades 1-5) and middle (grades 6-8).[93]

Pakistan ranks among South Asia's lowest performing countries on many education indicators and is unlikely to achieve the Millennium Development Goal (MDG) of universal primary education by 2015. Pakistan's education system faces a number of challenges, including inadequate physical infrastructure and facilities, under-investment in quality education, lack of proper and regular supervision and monitoring, lack of clarity in roles and responsibilities and fiscal devolution at the district levels.[94] Nearly every school needs something, such as electricity or a boundary wall, as a result of historically low capital investment.[95] Although middle and secondary schools are reportedly less impacted than primary schools by challenges such as "ghost" schools because of their relatively larger size and their location in relatively larger towns, human capital and infrastructure problems are widespread at the middle and secondary levels.

Secondary education plays a significant role in Pakistan's education system. It is both the entryway to higher education, and produces a middle-level workforce for Pakistan's developing economy, although there is debate whether Pakistan's recent economic growth has trickled down to the majority of people and whether Pakistan will be able to successfully diversify from traditional, agricultural-based industries. Not surprisingly, producing young people with the skills to compete in a global economy has been argued to be a key ingredient in a context of rapid urbanization and a demographic youth bulge.[96]

Secondary education consists of two stages: secondary and higher secondary. Secondary education is of two years duration and comprises grades 9-10, with graduates receiving a "metric" (matriculation) certificate resulting in a Secondary School Certificate or Technical School Certificate. Higher secondary education is also lasts two years (grade 11-12) and is offered at both intermediate colleges and higher secondary schools, with graduates receiving a college or intermediate certificate (i.e., FA/FSc). Pakistan has 23 Exam Boards, most currently operating at the provincial level, of which only one – the Aga Khan University Examination Board – is private. Students take national level exams from the 9th grade onward. The exams are based upon government curriculum that is printed in English in only limited quantities at the federal level and for the most part is not used by teachers. In urban areas, intense competition exists over exam scores, but in rural areas competition is more relaxed, with an estimated 80 percent of students appearing for the metric certificate and 50 to 60 percent of students passing.[97] An informal

[93] Shah 2009
[94] Kazmi 2005; and Shah 2009
[95] Mitchell 2008
[96] Cohen, C., "Pakistan 2020: The policy imperatives of Pakistani demographics," 2009
[97] Evaluation team's correspondence with AKU-EB

system of paying exam fees to guarantee passing exists and has been widely reported in the media, which means changes to the exam board system involve many stakeholders with myriad vested interests.

The net enrollment rate for lower secondary education was 18 percent in 2006-07, and the net enrollment rate for higher secondary education was 10 percent.[98] Parallel systems of education, such as private schools, also have a strong presence in Pakistan. However, government schools predominate (84% of schools) in rural areas, and 77 percent of educational institutions were located in rural areas in 2010-2011. In Pakistan, 69 percent of the 5.6 million middle school students in the country attended public (government) schools in 2010-2011. The majority (57 percent) of middle school students were boys. Similarly, 71 percent of Pakistan's 2.6 million secondary students attended public schools in 2010-2011, of which 58 percent were boys.[99] Higher secondary schools are very rare in Sindh and Balochistan since most students prefer to go to colleges – higher secondary schools and colleges overlap.

The government also maintains a system of segregated schools for boys and girls, although schools are allowed to enroll students of the opposite sex. The rationale for the gender segregation of schools is mostly related to the cultural traditions of Pakistani society and social norms that make it unlikely parents would allow girls to study with boys or a male teacher, although these assumptions have not been empirically tested.[100] Coeducation in rural primary schools was more common before the rule of General Zia ul Haq in the late 1970s, when girls were often forced to withdraw from coeducational schools during the Islamization process.[101]

Overview of Pakistan government teachers at the middle and secondary level

Teachers, including secondary teachers, are considered to be moderately well paid within the context of Pakistan.[102] The teaching force is represented by strong unions that are often linked to political parties, and teachers are entitled to a significant amount of official leave time (i.e., often three months of summer leave, 15 days winter leave, 24 casual leave-days annually, 16 national holidays, etc.), which enables male teachers, in particular, to hold additional jobs (i.e., agricultural workers, shopkeepers, etc.).

Although teacher absenteeism at the middle and secondary level is low according to official statistics, in practice teacher absence during the teaching day is widespread, particularly in certain provinces, districts, and among sub-groups of teachers. Teachers are required to work for six hours a day, less than other government employees of the same grade, and teaching positions are highly competitive, although government schools and their teachers are generally held in low esteem (i.e., government schools are colloquially known in Urdu as "*koti*" (donkey) or yellow schools.

The majority of Pakistan's middle and secondary government teaching positions are held by women, who primarily work in girls' schools. Of teachers working in rural areas, about 45 percent are female. Pakistan has 127,358 middle school government teachers, and the majority (66%) are female; it has 188,353 high school government teachers (56% are female) and 38,451 higher secondary government teachers (49% are female).[103]

Pakistan has an estimated 500 teacher training institutes, which are located in every district and train 99 percent of teachers. Pakistan is the process of adopting the National Council for Accreditation of Teacher Education (NCATE) standards, and provinces are in the process of adopting different policy guidelines and regulations around the degree requirements for teachers. In Sindh, all teachers as of 2012

[98] PSLSM 2007
[99] NEMIS 2011
[100] Gazdar, H., "Review of Pakistan poverty data," 1999; Westbrook et al., "Becoming a teacher: Transitions from training to the classroom in the Khyber Pakhtunkhwa, Pakistan," 2009
[101] Shaheed, F., and K. Mumtaz, 1993, "Women's Education in Pakistan."
[102] i.e., a secondary teacher of grade 14 to 18 is paid 22,000 to 35,000 rupees per month
[103] NEMIS 2011

need to take a National Teachers Database Test (NTDS), and middle and secondary teachers need to a have a BA degree plus a professional teaching degree (B.Ed) or M.A. degree and a professional degree (M.Ed). In Balochistan, teachers also need a BA degree plus a professional degree (B.Ed) or a masters' degree and a professional degree of education (M.Ed). There are two levels of teachers in secondary schools, junior teachers (elementary school teachers for grades 6, 7, 8, and higher) and senior teachers for grade 9, 10, 11, and 12, who have different degree requirements.

Overall, 66 percent of Pakistan's 127,358 middle school government teachers are female, 56 percent of its 188,353 high school government teachers are female, and 49 percent of its 38,451 upper high school teachers are female,[104] with wide regional gender disparities. But women account for only 4.3 percent of the total management and administration personnel in Pakistan, [105] meaning it is unlikely there is a significant number of female educational leaders, despite an increase in females at the management level in Pakistan. The entry of women into leadership has not really been translated into an acceptance of women into these positions, where skepticism about women's leadership capacities is shared among the general community and other teachers. [106]

Teacher capacity at all levels of education is a significant challenge, due in part to historical practices of political influence in the selection of teachers, past policies regarding the degree and training requirements for teachers, and informal but systematic practices such as the "buying" of degrees in certain provinces and informal short-cuts in attaining degrees (i.e., appearing for board examinations without having attended courses, but being officially enrolled at the college or university level).

Historical context for USAID interventions in Pakistan

Education has long been politicized in Pakistan. From colonial rulers to Western powers or present-day feudal elites, those in power have been accused of using education policy to foster their own goals, such as creating a class of English-speaking, colonial subjects, compliance with traditional feudal practices, and countering or manipulating radical Islamic forces.

For example, former president Pervez Musharraf promoted the concept of 'enlightened moderation" to depict Islam as fully compatible with modernity – a policy stance that has been accompanied by substantial foreign aid input, with the United States playing a leading role.[107] Between 2002 and 2007, USAID committed more than $100 million in education development in Pakistan,[108] and earmarked $36 million for rebuilding Swat, including schools.[109] At the same time, educational reforms pushed by the United Stated have become embroiled in debates about Pakistani national identity and "westernization from above."[110]

Pakistan's policy response to widespread poverty and lack of educational infrastructure has been mainly quantitative expansion, although educational policies have tried to achieve universal access to primary education and equity of access to education in relation to gender, class, and geography.[111] The provision of primary schooling has been a focus since the 1980s, and the encouragement of public-private partnerships to meet educational needs has been a focus since 1992.[112] The international community has

[104] NEMIS 2011
[105] Kirk, J., "Impossible fictions? Reflexivity as methodology for studying women teachers' lives in development contexts," 2003
[106] Rarieya, J. "Women in leadership: Negotiating the labyrinth,"2007
[107] Lingard & Ali, Contextualizing education in Pakistan, a white paper: Global/national articulations in education policy, 2009. Hereafter cited as "Lingard 2009"
[108] Kronstadt, A., "Education reform in Pakistan," 2004
[109] Tavernise 2010
[110] Lall, "Educate to hate: The use of education in the creation of antagonistic national identities in India and Pakistan," 2010
[111] Lingard 2009
[112] Ali, S., & Farah, I., "Education in Pakistan," 2007

also been asked to provide more than half of the $7.2 billion required by Pakistan's commitment to Education for All, according to the National Plan of Action 2001-2015.[113]

Overview of Government of Pakistan Education Policy

The two most important education policy documents in Pakistan currently are the National Education Policy 2009 and the National Plan of Action on Education for All (EFA) 2001-2015, which provides guidelines for implementing the National Education Policy. Another important policy document is Pakistan's Poverty Reduction Strategy Paper (PRSP) supported by the World Bank. Given devolution, it is currently unclear to what extent the provinces will adopt these federal policies.

Over the last 15 years Pakistan has undergone major changes in how the education sector is organized. The first major change occurred in 2001, when the Local Governance Ordinance was adopted and devolved significant authority from the provinces to the districts. The second major shift occurred in 2010, as mentioned above, when this law lapsed and the 18th amendment to the Constitution was adopted.

As a result of these shifts, Pakistan's education sector can be categorized as having a pre-devolution phase (pre 2001), a devolution phase (2001-2010), and a post-devolution phase (2010-current). Each phase has greatly impacted education management, teaching, and student performance. Prior to devolution, districts were not responsible for detailed budgetary planning. Inspectorate systems worked fairly well, and political interference was minimal. During the devolution phase, significant decision-making authority was transferred to elected districted governments, which were often not prepared.[114] Districts became financially independent; teachers increasingly applied for posts and transfers on the basis of personal connections, and the exam system changed, with the loss of national exams at grades 5 and 8.

The post-devolution phase, when the 18th Amendment to the Constitution devolved many responsibilities from central to provincial authorities, empowered provincial governments to design their own local governance systems and hold local elections.[115] The Provincial Departments of Education also were given responsibility for implementation of national education policies and management of primary, elementary, secondary, and technical education, and for assuming some of the challenges created during the devolution phase, such as a surplus of education management positions. The passage of the 18th Amendment also shifted many responsibilities from the district level to the provincial level, meaning the authority and power of DEO/DO (Secondary) was reduced after 2010. He/she now has little involvement in the matters relating to posting and transfer of teachers, site identification for the construction of schools and even provision of facilities to the schools.

In the post-devolution phase, the National Education Management Information System (NEMIS) continues to gather data from the provinces, but does not have an active policy role. NEMIS began the process of tracking indicators in the 1990s, using country-specific and other indicators developed through initiatives such as the Dakar Framework of Action for EFA and Fast Track Initiative (FTI) for EFA.

Overview of Pakistan's organizational education structure

Pakistan's education structure is organized slightly differently in each province. All provinces have a minister of education, a secretary of education, and education directors (such as director of the Bureau of Curriculum [BoC], textbook board, Reform Support Unit [RSU], and Provincial Institute for Teacher Education [PITE]).

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[113] Grare, F., "The landlord, the Mollah, and the military: The education issue in Pakistan," 2007

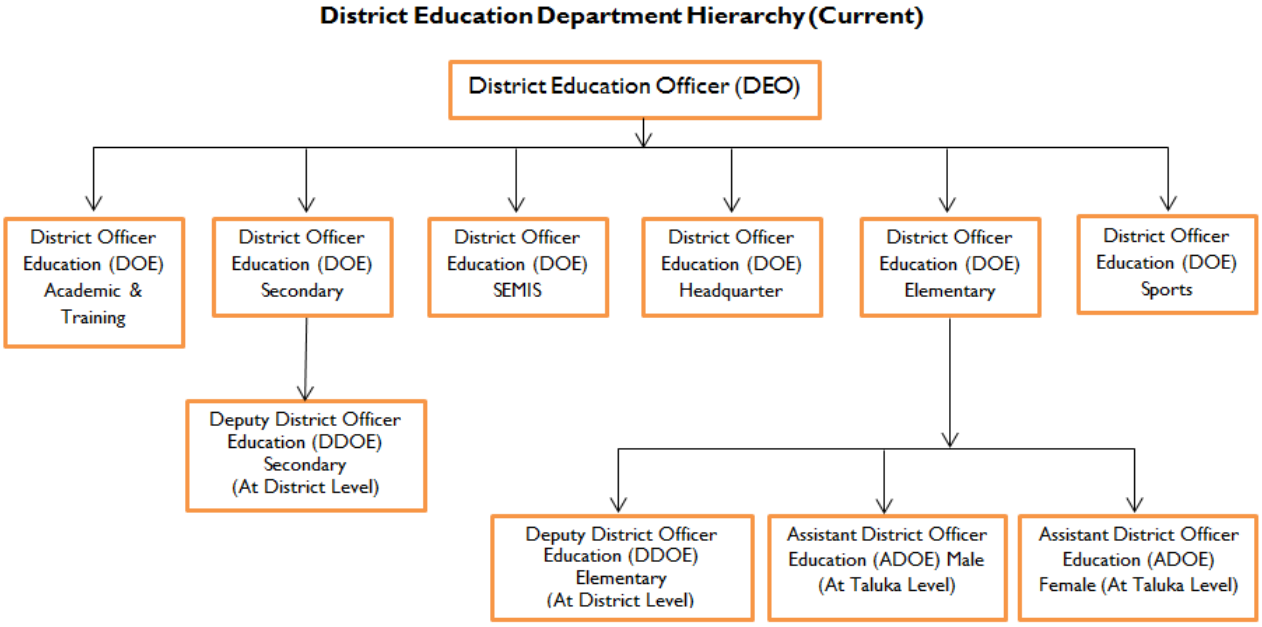
[114] Mitchell 2008

[115] Lamb, R., Governance and Militancy in Afghanistan and Pakistan, 2011. Hereafter cited as "Lamb 2011"

At the district level, there are District Education Officers (DEOs, [Agency Education Officers in FATA]). DEOs are responsible for monitoring and supervision of schools, coordination of the entire sub-sector of education, formulation of the district annual plan and its implementation, and collection and compilation of education data. The District Education Department also monitors development projects, supports the strengthening of the Education Management Information System (EMIS), conducts standard examinations up to the middle level, and transfers teachers. It no longer recruits and posts teachers, which represents a significant loss in power.

The department's role in the identification and inclusion of schemes in the Annual Development Plan is advisory, and the secretary of education decides what to fund. The power to create and abolish teaching and non-teaching staff positions lies with the provincial government; therefore, the district government is unable to meet a school's demand for additional teachers. As a result, most of the schools are under-staffed in rural areas.

Figure 5: District Education Department Hierarchy



The DEO is assisted by the District Officers (DOs) (Elementary & Secondary), who supervise secondary schools. The main responsibilities of the District Education Officer (DEO) and District Officer (DO) are supervision of secondary schools, the monitoring and performance evaluation of the head teachers of secondary schools, planning and budgeting, and the conduct of official inquiries against the teachers and head teachers of secondary schools.[116] DEOs conduct surprise visits to schools to check teachers' absenteeism and students' attendance.[117] An estimated 90 percent of DEOs lack computer skills, and each district has data management staff (District EMIS [DEMIS] cells), with data concentrated on infrastructure, teacher experience, teacher pay scale, teacher performance, and student enrollment on a school or class level.

Most DEOs have masters' degrees, and started their career as teachers. Some have had management training from the Academy of Educational Planning and Management (AEPAM) and from other provincial training institutions.[118] Education officials at the district level usually have risen through the ranks on the

[116] Shah 2009
[117] Shah 2009
[118] Shah 2009

basis of seniority or political patronage, and usually have little or no formal training in management. They have difficulty quantifying or prioritizing needs at their schools, which places them at a disadvantage in advocating for increased allocations to the education sector.[119] DEOs are assisted by the Deputy District Education Officers (DDEOs) and the Assistant Education Officers (AEOs).

Head teachers supervise the budget at secondary schools, and teacher committees assist the head teacher in making purchases and minor repairs. School Management Committee (SMCs) or Parent Teacher Associations (PTAs) have advisory roles in secondary schools, but do not play their role as envisioned due to rigid financial rules, lack of cooperation and discouragement by local education managers, and illiteracy.[120]

FATA Overview

FATA has a population of just 3.34 million, less than two per cent of Pakistan's total. Pashto-speaking, Pashtun tribes primarily occupy its seven agencies and six frontier regions (FR). Poverty is widespread, with a majority of households (66 percent) below the poverty level in 2010 (Markey, 2008). This is three times higher than Pakistan's estimated overall poverty rate of 20.7 percent in 2010, and is higher than the 27 percent poverty rate in rural Sindh. The official poverty line is Rs. 1671.89 for 2010,[121] or about US $150. Additionally, as a result of fighting and military offensives, the number of displaced people in FATA reached 2.7 million by July 2009. An additional 2.3 million people in the Malakand region of the Khyber Pakhtunkhwa province also were displaced by fighting in 2009. Flooding impacted the region in 2010, with 20 million people affected throughout Pakistan.[122]

There are only two higher education institutions in FATA were aspiring and practicing teachers can obtain pre- and in-service training. Both are located in Khyber Agency, a hilly agency on the Afghanistan border that has a population of about half a million people. In FATA, as in Balochistan and Sindh, male teachers are about double the number of female teachers, with government male teachers at the middle and secondary level numbering 6,962. The female literacy rate in FATA is 3 percent, according to a 1998 census, compared to 32 percent for Pakistan.[123] However, females are starting to play a greater public role than in the past, according to an evaluation team member.

The directorate of education in FATA is a powerful person, according to an evaluation team member. Every agency has an assistant education officer (AEO), and under him there is an agency assistant education officer (AAEO) male and female. The male is responsible for the male institutions, and the female for the female institutions. The directorate of education works through the AEOs. The director is in charge of posting and transferring teachers, and hiring is done through KP's provincial public service commission. Some AEOs are very strong and fight for their rights, and some are weak, according to an evaluation team member. The position of AEOs and headmasters are interchangeable. Normally, AEOs are headmasters who were promoted, and generally stay in their positions for two or three years. The AEO from Khyber Agency has been in his position since 2010. The AEO from Peshawar had been in position since 2011, and the AEO from Muhammad Agency had been in position since 2010. Some AEOs retire, some move on to a better position, and some are posted back to their schools.

In 2010-2011 FATA had a total of 457 middle schools, 277 high schools, and 13 higher-secondary schools, of which five were for girls.[124] Corporeal punishment is frequently used in FATA schools.[125]

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[119] Mitchell 2008
[120] Mitchell 2008
[121] Arif & Farooq, "Dynamics of Rural Poverty in Pakistan: Evidence from Three Waves of the Panel Survey," 2012
[122] Din, N., Internal Displacement in Pakistan: Contemporary Challenges, 2010
[123] Nawaz, S., "FATA--a most dangerous place: Meeting the challenge of militancy and terror in the Federally Administered Tribal Areas of Pakistan," 2009
[124] NEMIS-AEPAM, "District Education Profile 2010-11," 2011
[125] Ali 2012

Balochistan Overview

Balochistan, the geographically largest and most under-developed of Pakistan's four provinces, is generally comprised of two types of communities: Pashtun and Baloch. Additional primary ethnic groups in the province, which contains about 8 million people in addition to about half a million refugees from Afghanistan, consist of Brahuis, Hazaras and Sindhis. Pashtun districts, generally north of the provincial capital of Quetta, typically are considered to be receptive to education as well as other development initiatives taken by the government and other organizations, said an evaluation team member. Districts with Baloch-dominated populations can be comparatively less receptive towards government and non-governmental interventions, due in part to a complicated political-social context and on-going armed conflict, although great diversity exists among Baloch-dominated districts. Among Baloch-dominated districts where ED-LINKS operated, the District Awaran to the south has among the highest poverty index in Balochistan.

In Balochistan, two provincial ministers for education exist: One is for schools and the other is for colleges. Similarly there are two provincial secretaries of education: One for schools and the other for colleges. The Secretary of Schools is the operational head of schools in the province. At the district level, the District Education Officer of Secondary Schools is the district head, and under him there are headmasters.

Islamabad Capital Territory (ICT) Overview

There are a total of 433 primary and secondary schools in ICT, which is divided into five sectors. The Secretary of the Capital Administration Department (CAD) is the overall head of the department. Then there is Director General Federal Department of Education. Under that position, there are three directors: 1) Director of Coordination, 2) Director of Training and 3) Director of Schools. Under the Director Schools there are Assistant Education Officers (AEOs) and then schools headmasters.

Sindh Overview

The Education and Literacy Department in the Government of Sindh, Pakistan's second most populous province with about 42 million people, oversees primary and secondary education, as well as units such as the Reform Support Unit. The Reform Support Unit has a policy wing, a monitoring and evaluation wing, and an EMIS (SEMIS) wing. The RSU is also envisioned as a platform for donor coordination in Sindh, which has 11 districts. Each district has a detailed online profile at: http://www.rsu-sindh.gov.pk/semis/educationprofile2011-12.html.

Sindh has 4,346 middle and secondary schools, of which 1,298 are girls' schools and 979 are co-educational. There are 36,718 teachers at this level, and 777,170 students.[126] Only 27 percent of middle and secondary buildings are reported as satisfactory in 2009-10, according to SEMIS, and schools lack subject specialists and labs.[127] Sindh has large urban-regional disparities, and also has the highest percentage of urban residents in Pakistan, due to high urban densities in Karachi, Hyderabad, and Sukkor.

The BoC in Sindh is in the process of reviewing the National Curriculum of 2006, and may adapt it for Sindh, and the Sindh Textbook Board (STB) plan to revise textbooks per the National Curriculum of 2006, although the majority of schools in Sindh (87 percent) are Sindhi medium.[128]

[126] Government of Sindh
[127] Ali, S., "Policy Analysis of Education in Sindh," 2011. Hereafter cited as "Ali 2011"
[128] Ali 2011

Appendix 8: STUDENT LEARNING AND THE LEARNING ENVIRONMENT

***IR 3.1*: *Improved student learning and the learning environment* through developing systems for gauging student learning and achievement, strengthening of assessment, and providing learning tools and classroom inputs aimed at improving student achievement**

To meet its first of three objectives, which was geared specifically to improving student learning and the learning environment, ED-LINKS planned, carried out and reported on a number of different activities. Its close-out report for the implementation of core activities in Sindh, Balochistan and ICT specified project achievements against 21 indicators for this objective, while the project's final report for FATA tracked the FATA PMP's nine relevant indicators.

Specifically, ED-LINKS planned activities in four different arenas related to the student learning objective:

1) The project would *improve the learning environment* through a number of different activities that included providing computer labs and science labs to schools; math and science kits to classrooms; and five-day residential "EXCEL camps" for students and teachers that focused on science, math and English. ED-LINKS would develop and provide educational software in math, English and science, and it would support a student exchange program for young people to visit the United States for about two weeks.
2) ED-LINKS planned *to improve classroom instruction* by such mechanisms as providing materials to teachers to deepen their understanding of the subject they taught, whether that was science, English, math or IT, and helping science teachers learn to develop teaching aids at little or no cost.
3) It would address *student assessment* issues by various activities including supporting the development of formative student assessment systems for teachers to use in the classroom, helping District Exam Boards and the Inter-Board Committee of Chairpersons in each province to develop standards-referenced exams, and helping district education offices and others develop the capacity to develop, mark and analyze the standards-referenced summative tests.
4) Finally, ED-LINKS would *increase the use of classroom materials and equipment* in different ways, including training teachers in the use of the science labs and supporting them to help students develop science projects through such an entity as a science club. [129]

The table below summarizes results for key student learning and learning environment activities from each of the four focus areas of ED-LINKS' first objective. Indicators 1 – 6 relate to improving the learning environment and classroom instruction. Indicator 7 pertains to improving classroom instruction. Indicators 8-12 relate to indicators that were to improve student assessment systems. Indicators 13-14 are tied to increased use of classroom materials and equipment.

- ***Indicators are from the PMP for Sindh and Balochistan, unless otherwise noted. Targets are those in the final versions of the PMPs for the four project areas and reflect downward adjustment of the targets set in the original PMPs. See Table 12 for more detail regarding target reductions.***

Below is an assessment of these key activities in each of the four arenas that ED-LINKS expected would contribute to the project's achieving its first objective of improving student learning and the learning environment.

1) *Improved student learning and the learning environment (IR 3.1.1)*

[129] AIR, "ED-LINKS – Core Sindh and Balochistan Final PMP and Achievements (as per close-out report), 2010, pp. 1-10.

ED-LINKS' myriad means of improving the classroom and school learning environment produced mixed results. Computer lab installation in schools, science lab installation and the enhancement of existing science room facilities, the provision of math and science kits to schools, the development of educational software for math, science and English for students to use in the computer labs – all illustrate this point.

As a backdrop to this review, a comparison of individual activity targets toward the beginning of the project and then toward its end, often shows major reductions. It is not clear what proportion of these reductions may be attributed directly to funding cuts and what proportion may have been realistic adjustments based on low achievement at the time, for any reason. The table below illustrates the magnitude of target changes for several activities intended to enhance the learning environment.

Table 13: Illustrative Target Reductions*

	Original Target	EOP Target
No of units supplied		
Computer labs	400	53 + 15*
Science labs	Unclear	41**
Science kits	2000***	614 + 307*
Math kits		614 + 307*
Educational software for math, science and English	750 copies to be distributed	Materials were developed, but never distributed

*It was not always possible to determine exactly which project areas were included in each figure. Where two figures appear, the first represents the target for Sindh, Balochistan and ICT, the second, for FATA.
**In addition to the installation of science labs, ED-LINKS enhanced existing science labs in 40 schools in Sindh and Balochistan. It provided "lab equipment for science" to 150 secondary schools in FATA.
***This figure does not include FATA.

Indicators 3.1.1.4 and 3.1.1.5 - Science and computer labs

The computer labs (68) and science labs (41) installed were often used, but sometimes not used at all. On the positive side it seems that computer and science labs were clearly valued in many of the places where they were up and running and that they were perceived as adding appreciable value to the school. Said one student, "Private schools do not have such facilities like science lab and computer lab and their fee is also high. We enjoy all the facilities free and we feel better than private schools." Said another, "Yes, on every Tuesday we use computer lab, in these days as our exams are near we are using science lab as well." At another school where the computer lab was functional, the teacher said students were using it and were very appreciative. In Balochistan, evaluation team members were able to take a picture of several students sitting in their school's science lab, surrounded by beakers, scales and petri dishes.

On the negative side, the evaluation team members who visited Balochistan found a computer lab that had never been operational, sitting safely in the best classroom in the school, well protected from dust by its original plastic wrapping. In the district of Awaran, the field team visited four computer labs, and found two not functioning. Several people observed that the computer lab at their school also was not in service. Said one student, "There [aren't] any computer teachers in our school [and] that [is] why we cannot use [the] computer lab." In some schools, load shedding made operation of the lab challenging, if not impossible. Reported one individual, "…load shedding is a problem, computers are not charged properly and we cannot use them." There was a report that one school could not use its computer lab because its service had been cut off for non-payment of its electric bill. There were accounts of schools that did not use the lab because the machines were considered too valuable, or too expensive to repair. The computers in one lab had reportedly been stolen, while in FATA, conflict had destroyed several labs.

As for science labs, one student interviewed mentioned an unused lab that was stored – permanently – in a large cupboard at the school. In Balochistan, the field team visited eight schools in four districts and found material generally kept in a small area, instead of being set up as science labs. At one facility only 10-15 items were kept in a cupboard. In Sindh, the field team visited a school were science tools were kept permanently locked in a small three-by-four foot cabinet. Some labs may not have been used because they had been delivered with only a limited amount of consumable material. Some teachers may not have used the science lab for fear of being charged for consumables or for any breakage of equipment. One person explained that because there were 300 students in 9th and 10th grade, teachers were not able to conduct practical work in the [non-functional] science lab.

Regarding the report that there was no teacher trained to teach students how to use computers, it is possible either that no teacher in the school had been fully trained in IT and computer operations or that the teacher who had been trained had moved on since ED-LINKS ended its work at the school. That said, it appears that ED-LINKS did not always fully consider the fundamentals that needed to be in place to maximize the usefulness of a computer or science lab – the reality of teacher transfers and attrition, the challenge of reliable access to electricity, the prevailing mindset regarding repair of equipment or replacement of materials. More exposure to using the science lab for hands-on learning could have increased teacher confidence and motivation to make better use of the lab's potential. If a school had not already designed space for a science lab, encouraging and advising a school about how to create that space might have minimized the lab-in-the-cupboard scenario. To encourage teachers to use the science labs, fewer items and larger quantities of consumable and disposable materials might have been helpful. Clarifying policies about the use, repair of equipment and replacement of materials for experiments could have added to the allure of the new labs.

Given the fact that in 2008 the project had undertaken a comprehensive exercise to assess ED-LINKS school facilities – including developing a scorecard for each school regarding computer lab, science lab, and broader infrastructure and human resource issues – it is difficult to understand why the project installed labs in facilities that simply were not prepared to make the best use of them. Without full

consideration of the circumstances into which a lab would be introduced - space, utilities, teachers to be trained - it was impossible for ED-LINKS' activities in this arena to realize their full potential.

It must be noted that because ED-LINKS was not able to provide the 400 computer labs initially envisioned, USAID lost credibility in the eyes of those in at least some communities, potentially negating in those places the good will that the labs usually would engender. In ICT, for example, two computer labs for each sector had been promised to secondary schools and the schools had been selected, but the computer labs had never been delivered due to modifications to this target. The reduction in the number of labs provided created suspicion. For example, in Pishin District, residents said 11 computer labs had been promised, but only three were provided. Community members were disappointed, and the field team found several teachers and community members used conspiracy theories to explain why the promised labs were not delivered (i.e., that "USAID people" had taken the labs because "USAID" was written on the packing material, not "ED-LINKS").

Indicator 3.1.1.7 - Science and math kits

In field interviews teachers and Master Trainers did not often mention the science and math kits that the project provided. ED-LINKS' own evaluation report about these kits indicates that of the 274 teachers in Balochistan, Sindh and FATA who were interviewed for the study, nearly all had access to the kits and between about half and two-thirds of the teachers used the kits once a week. [130] According to this report, teachers agreed or strongly agreed that the kits were "helpful in clarifying the concepts easily, developing students' conceptual understanding of the topics, and using variety of instructional activities as well as that the kits allow students to learn by doing, motivate them to ask more questions, and make the lesson interesting for the students." At the same time, about half the teachers reported that they did not understand how to use some of the kit items. ED-LINKS attributed this to the fact that kit training had been embedded as a one-day element in ED-LINKS' regular teacher training program and had not been the focus of a longer independent training workshop. About a third of the teachers also noted that having only one of each item in a kit was sometimes insufficient. [131] Several comments about science and math kits that this evaluation's team members heard appear below. These were generally positive, but indicate, too, that kits were underused.

Table 14: Student Comments on Science and Math Kits

Respondent Number	Position	Science and Math Kits Comments
Respondent 19	Undefined	…[Interviewees] also requested if teachers could be trained with modern methodology, and a survey be conducted for science kits, furniture etc…
Respondent 22	Teacher	…She thinks that the science kits provided are very good but not effectively used due to lack of skills…
Respondent 30	AAEO	…She talked about the science kits and how more kit programs need to be organized - so far only one has been organized. She was of the view that the kits are used up to 10 percent because of the management and lack of skill and experience and the extreme restrictions imposed on the management due to audit observations…
Respondent 33	Principal	…Generally, we have observed during our visit that there was a lot of appreciation regarding the furniture, the classrooms, libraries, labs and scientific kits.…
Respondent 35	Principal	She was of the view that ED-LINKS training should be more about classroom-based activity training. They, too, had been provided with teacher training kits and science kits. The diaries provided by ED-LINKS are being proven very useful as it contains all the daily activity that takes place….

[130] AIR, "Evaluation Report on EDLINKS Math and Science Kit[s]," September 28, 2011, pp. 9-10. Hereafter cited as "AIR Kits."
[131] AIR Kits, p. 11.

It seems that math and science kits added a useful dimension to teaching when teachers used them. More orientation to the kits would have been useful. Some teachers reported to this evaluation team that their head teachers did not allow them to use the kits because of fear that auditors might hold the head teacher accountable for any lost or worn-out items. Thus as in the case of the labs, it would have been beneficial to the learning environment that ED-LINKS was trying to enhance if the project had actively supported schools having and communicating clear policies for teachers and their supervisors about the expected use of materials and where responsibility for equipment maintenance and replacement of consumables lay.

Indicator 3.1.1.8 - Student Exchange Program

ED-LINKS sent 103 students to the United States for two weeks of orientation to instructional technology within U.S. schools. These visits provided much more: a chance for young people in their formative years to gain a close-up view of education in the United States and, more broadly, the U.S. itself, and then share those views with others, once they had returned home. Uniformly participants and other key informants saw this program as highly successful, benefiting the students themselves and broadening the view of the United States that family and community members might have as well. While one observer remarked that these exchanges would never change Pakistan's education system, no one thought that in future programming, such visits should be curtailed.

Thus the exchange visits made possible by ED-LINKS provided a means for students not only to learn about the U.S. and what American students their age are thinking and doing, but offered the opportunity for that grounded learning to be taken back and shared with many who will never have that cross-cultural experience. Although it was not within the purview of this evaluation to undertake a cost/benefit analysis of this student visitation program, these visits seem to have been an effective mechanism for promoting learning and cross-cultural understanding for many more than the number of students who actually traveled to the U.S.

Table 15: Beneficiary Comments about Student Exchange Program

Respondent Number	Position/ Stakeholder	Comments about Student Exchange Program (SEP)
Student 2	Student	Q5: My school, through ED-LINKS sent me to USA on exposure tour which changed my thinking process. Now I am like a celebrity in the town and other schools call me on their functions to address.
Student 5	Student	Q1: Basically, I participated in the exchange program and it was a good experience for me. Generally besides this exchange program, a change has been observed in our teachers' teaching methods…
Teacher 29	Teacher	More exchange programs should take place and duration of extension programs should be extended.
Teacher 31	Teacher	…she too is of the view that best schools of the U.S.A be brought together with the schools of FATA so that there is more exchange of students and teachers.
Leader 20	AAEO	She also said that student exchange visits should be organized within Pakistan and abroad… The student exchange program was a very forcible by her
Leader 24	Principal	The classroom library has been very useful - she informed us that 4 of her students went for the student exchange program and one girl topped Peshawar board - this was something she was very proud of.

Indicator 3.1.1.9 - EXCEL camps

ED-LINKS sponsored residential five-day-long EXCEL camps that focused on math, science or English. The evaluation team talked to three teachers out of 45 teachers who worked with students who attended EXCEL camps in Balochistan; these educators were positive about the camps. In Sindh, the team talked to one PITE government official who witnessed an EXCEL camp and reported that

students and teachers were very happy and excited. For all participants, the EXCEL camps represented a chance to travel outside their districts, sometimes for the first time, and to enjoy hands-on experience that seemed to have deepened the appreciation of a subject.

Although EXCEL camps were small in number – 10 in Sindh, Balochistan and ICT combined – their popularity among both students and teachers suggests that in future projects, the idea of such camps should be expanded. The experiential student-centered learning and the facilitation of collaborative learning among teachers that the camps offered argue strongly for future investment in such activities as EXCEL camps. This conclusion is supported by the fact that EXCEL camps were able to generate government buy-in: District governments sponsored 15 camps in six districts of Sindh and Balochistan, with technical assistance from ED-LINKS.

Table 16: Comments about Summer Camps

Respondent Number	Position/ Stakeholder	Comments about Summer Camps
Teacher 9	Teacher	Q9: Along with Science, the Arts topic should be include, study tours, summer camps and interactive session among students for better learning should also be conducted by ED-LINKS.
Leader 15	Leadership & Management	He also said that summer camps should be organized for the students so more activity can occur and students from other schools can also interact with each other. (FATA)

Indicator 3.1.1.11 - Development of educational software for math, science, and English

The Teacher Resource Centre (TRC) developed educational software and user manuals to expand students' understanding of science, math and English. ED-LINKS anticipated that CDs could be used in computer labs and would provide a reliable foundation for learning subject basics. TRC planned to produce 750 copies of each of the three CDs for distribution to schools. This was never done because of project funding cuts.

Thus the fall-out from the diversion of ED-LINKS funds to non-core activities meant that students in ED-LINKS schools did not benefit from the project's investment in the development of this educational software. This provides a stark case of the price in education that ED-LINKS and its student stakeholders paid when the project's focus broadened to include relief and rehabilitation programming using core activity funds.

2) *Improve classroom instruction*

Indicator 3.1.2.1 - Supplemental learning materials

ED-LINKS sampled 280 teachers from 100 schools in Sindh and Balochistan to assess the usefulness and effectiveness of the project's subject-oriented materials in the areas of science, math, English and IT. These materials included sample lesson plans, examples of classroom activities and resources for the development of pedagogical skills. They were used in the project's core teacher training workshops. ED-LINKS' own assessment found that more than 95 percent of teachers interviewed spoke positively about the quality of these materials. The study reported, however, that "while a quarter of the teachers use the supplemental materials very frequently, the other quarter of the teachers does not use the materials as frequently as hoped." [132]

Feedback to this evaluation's team members was positive regarding the supplemental materials – one researcher reported that he had been told that deeper knowledge of subject matter may have mitigated the fear that some teachers have going into a classroom; such teachers "hid" behind rote learning to avoid being asked questions they could not answer. At the same time, several teachers interviewed indicated that the training workshops in which these materials were introduced were

[132] AIR, "Evaluation Report on ED-LINKS Supplemental Materials: English, Science, Maths, and IT," September 28, 2011, pp. 6-7.

intense and over-programmed in light of the workshop's timeframe and the capacity of those participating in the event. Materials sometimes seemed too complicated and sophisticated. In addition, manuals to support applying training in the classroom that were to have been translated into a provincial language and sent home with participants did not always materialize. This failure to provide useful written guidance that was consistently aimed at a realistic level of capacity, in a language that a teacher could easily understand, meant that the effectiveness of this ED-LINKS training that was core to the project's teacher training model, was potentially compromised.

In the final analysis, the subject-specific supplemental learning materials constituted a strong element in ED-LINKS' teacher training that could be integrated effectively with the introduction of new pedagogy in training workshops. Feedback regarding the scope of these materials and the pace of their presentation in teacher training, as well as lack of follow-through with the provision of manuals in a provincial language, suggests that ED-LINKS could have done more to maximize the usefulness of the supplemental materials by first, simplifying the training, and second, ensuring that user-friendly materials were available to guide teachers when they returned to their classrooms.

3) *Student assessment*

Indicators 3.1.3.1-5 - Formative and summative assessment systems

ED-LINKS included in its basket of interventions intended to enhance student learning, activities for developing and piloting new formative and summative assessment tools. In Pakistan in 2007, ramping up assessment systems seemed an excellent way to help middle and secondary school teachers transition into using the new national curriculum that the Ministry of Education had adopted just a year earlier. According to the ED-LINKS vision, the generation and institutionalization of a well-articulated formative assessment system would provide teachers with continuous feedback about what students were actually learning so that they could customize their teaching to maximize student success.

In addition, formative assessment, with its Student Learning Objectives (SLOs), pacing guides, and lesson plans, could be used as a means for teachers to move beyond dependence on rote learning. The idea of using student assessment systems overlapped, to some extent, with another ED-LINKS initiative, the training of teachers to use student-oriented pedagogy, such as group learning, asking students questions, and inquiry-based use of the curriculum. Accordingly, introducing teachers to formative assessment would make it possible to gear in a new way, the organization of classroom learning around an orderly, pre-established sequence of learning content, activities, and steps that could be framed around learning objectives and could be linked to the introduction of new ways to teach.

As for summative assessment and the creation of new annual end-of-year exams or matriculation tests geared to the 2006 curriculum, there were at least two important benefits to accrue from investing project funds in this technical activity. First, new summative assessment work would make it possible for district educators to begin to standardize testing across the same class in different schools, rather than continue a traditional practice of teachers developing their own tests for classes that are below the 9th grade level.

Second, and this was key, standardized, provincial Board Exams largely drive what teachers teach at the 9th grade and higher levels. Competition for top Board Examination marks is fierce, especially in urban areas, and head teachers and teachers – particularly at better government schools – tend to "teach to the test." ED-LINKS, in partnership with the Aga Khan University-Examination Board (AKU-EB) envisioned using student assessments to update the official Board Exams, which would change how, and what, teachers teach. The creation of District Exam Boards to work at the pre-9th grade level, and the holding of strategic workshops with provincial government officials and the Inter Board Committee of Chairmen (IBCC) to improve the 9th grade and higher exam system, was the

strategy ED-LINKS planned to use for incorporating student assessment into the prevailing education process.

In adopting this strategy of inclusion of assessment in its change model, ED-LINKS' was validating AKU-EB's working premise that the elements of the learning environment, learning materials, teacher training and assessment are inseparable and that any attempt to improve the learning environment can be successful only when all of these are addressed. [133] Within ED-LINKS, AKU-EB worked with Master Trainers and others in 22 districts across Sindh and Balochistan on standards-referenced classroom assessment and promotion exams. It supported teachers to develop and use classroom assessment with reference to the 2006 national curriculum. It provided in-school support to middle-school teachers of English, science and math in the use of standards-referenced classroom assessment for improving the learning environment. [134] This involved frequent use of open-ended questioning, the use of performance feedback that avoided personal evaluation, and the use of self and peer assessment by pupils to record personal progress. A plan to link SLOs to indicators and exam results was initially discussed by ED-LINKS and AKU-EB in several meetings in 2008. This never materialized, however, according to AKU staff.

AKU-EB reported in its close-out report in 2010 that head teachers in Balochistan had observed that in some classrooms, tasks to assess students' performance that had been developed in ED-LINKS workshops were being used. These involved asking students questions and having them work in groups. This pedagogical approach had apparently generated renewed interest in academics from students and a willingness on their part to share with their teacher and peers. On the negative side, teachers had found it difficult to complete the syllabus within the class time allowed and they had experienced that transfers diminish the critical mass and capacity for the use of assessment in a school. [135]

AKU-EB asserted that its own classroom observations during ED-LINKS implementation confirmed the use of assessment tasks in 341 schools in Balochistan and Sindh. AKU-EB found that nine out of 16 indicators of an improved learning environment had often increased from between 7 to 30 percent and that the questioning style of teachers had improved "radically." [136]

AKU-EB also worked to build the capacity of District Education Officers to improve the quality of middle school promotion exams. It worked with district education offices to ensure that District Examination Committees could anchor a promotion exam assessment and development process. In 2010 AKU-EB undertook a comparison of middle school promotion exam results of students in 2008 and 2010 in English, science and math in 14 districts of Sindh and Balochistan to gauge the impact of project activities on student performance. Because the exams of the two years had been marked differently, the 2008 exams were remarked using the marking system of 2010. In addition, school features such as gender of students, location of school, school level, school size, class size, and presence of a library and of a science lab were factored into the analysis. [137] In short AKU-EB undertook "Investigation in [the] link of promotion exam[s], classroom environment [connection of teaching with real life, questioning style of teacher, student involvement in class] and school and classroom characteristics…by correlating scores of students with learning environment in the class and some of the school demographics." [138]

AKU-EB wrote in its close-out report:

[133][133] Mustafa, Isbah, AKU-EB, "Close-out Report on Interventions in EDLINKS Project (Nov 2007 – Nov 2010)," p. 48. Hereafter cited as "AKU-EB Close-out."
[134] AKU-EB Close-out, pp. 2-4.
[135] AKU-EB Close-out, p. 6.
[136] AKU-EB Close-out, p. 11.
[137] AKU-EB Close-out, pp. 17-19.
[138] AKU-EB Close-out, pp. 19-20.

> To gauge the impact of project activities on student performance the results of 18 schools in Sindh and 9 schools in Balochistan are used….These are the schools whose data of marking and remarking of 2008 exams and 2010 exam[s] were available.
>
> There is significant positive shift in student performance from 2008 to 2010 exams….The overall result consists [of] a range of change from -20 point[s] of achievement to +33 points of achievement…. This shows a significant positive shift in student performance.
>
> Taking [the] school as the unit of analysis the improvement is reported in 60% of the schools….6 out of 9 schools in Balochistan and 11 out of 18 in Sindh show improvement in overall student performance from 2008 to 2010. [139]

The use of formative and summative assessment is an important and probably sustainable achievement within Pakistan's context of slow-moving changes regarding such issues as curriculum development, the printing of textbooks, and exam systems based on textbooks. Textbooks that use the 2006 national curriculum still have not been printed, and Pakistan's provinces now must decide just what the curriculum is that they will use and in what language that curriculum will be taught. As these post-devolution decisions are made, provincial governments will have an opportunity to adopt assessment tools, methods and systems. If they decide to use assessment as a means to bring about long-term fundamental change in education, it will be important for them to develop ways to operationalize assessment that can be readily understood and used by most of the educators in the Pakistan school system.

4) *Use of classroom materials and equipment*

Indicator 3.1.4.3 - Science clubs

ED-LINKS viewed the creation of science clubs as an effective way to re-enforce learning. The project was successful in helping to create 536 of these groups, nearly doubling its end-of-project target number of 300 clubs. The comments of people interviewed by the evaluation teams indicate that clubs were active at the time of project implementation, with members exploring a wide variety of science topics. In one case it appears that an educator even put to work a corollary project intervention of teaching how to create learning materials out of low-cost or even free materials. It appears, however, that many clubs have not proved sustainable. Table 16 summarizes observations of nine individuals, mostly students, who commented about these groups.

Table 17: Comments about Science Clubs

Respondent Number	Position/ Stakeholder	Science Clubs Comments
LR5	Leadership & Management	Yes I selected [Boys High School] and applied all techniques in this school. We also formed Science Club which is very successful.
R1	Student	We did some experiments in 9th class but there isn't any activity happened after it regarding science club.
R2	Student	Yes, I was active member of the science club and still we are running that club but in an informal way. I learned the research work on different topics/subject, for example, we conducted a research on "role of plants in creation of healthy environment". We shared the results of researches with other students for the benefit of students and society as a whole.
R3	Student	Our science club is not very active so far; however we have learnt to prepare Models of different things. We have also learnt to prepare thing with useless material.
R5	Student	There is a science club in school, but there is no activity has been carried out in this club as no science teacher in school and lab is also not functional.
R6	Student	Yes I am member of science club where I have learnt about functions of brain, and weight. We also have conducted many experiments of physics which were so

[139] AKU-EB Close-out, p. 29. The evaluation team did not have the raw data for this study so was unable to verify these results.

		interesting
RG1	Students (Group)	No this facility we do not know and there is no science club in our schools
RG2	Student	Yes, I [one student out of three interviewed] was part of science club and we used to discuss different practical work, we learnt how the functions of computer, microscope and frog experiments
TG1	Teachers (Group)	They have also pointed out that science clubs were not formed in any school (14 responses).

Taken together, evidence regarding ED-LINKS' efforts to achieve its first objective involving improving the learning environment, improving classroom instruction, introducing student assessment, and increasing the use of classroom materials and equipment suggests wide-ranging results. On the infrastructure front, ED-LINKS did not always pay sufficient attention to the physical environment and access to utilities that its activities required, despite having gathered in 2008 the information needed for decisions related to such issues (science and computer labs). On the human resource side, the project did not always provide sufficient training to teachers who would be using project inputs (labs, science and math kits). ED-LINKS suffered from budget cuts that curtailed efforts to copy and distribute subject-specific software, despite the investment in its development. Its ambitions regarding developing systems that could foster fundamental change in the middle and secondary school sector were unrealistic in their scope and pace, over-estimating the capacity and motivation of educators within the system to be able to apply new approaches in the classroom (formative and summative assessment). The project's attempts to increase the use of classroom materials and equipment were appropriate and creative, but all too often did not pay enough attention to the question of sustainability (science clubs).

At the same time, schools that did have the capacity, either in physical plant or teachers, to put labs and kits to full use, seem to have appreciated and valued these additions to the environment. ED-LINKS' student exchange program and EXCEL camps were also regarded highly, though neither was implemented at significant scale. Perhaps the software developed within ED-LINKS will find be able to contribute to future programming. As for the supplemental learning materials for teachers, often these were effectively integrated into training workshops, despite what sometimes seemed to have been an overly ambitious and complicated set of materials, lacking sufficient follow-through to maximize usefulness. Assessment of student learning, which also was not always structured around a realistic assessment of what was possible, showed promise, with its foundations in anchoring fundamental change in the entire schooling system, worthy of follow-up in subsequent education programming. As for science clubs, which were not always sustained, students seem to have valued these, even in cases in which they were not continued.

Table 18: Student Learning Indicator Table

Selected Activities, Targets and Results for ED-LINKS Student Learning Activities* Sindh, Balochistan, ICT and FATA						
	Sindh, Balochistan, ICT		FATA		Total	
	Targets	Results	Targets	Results	Targets	Results
1) 3.1.1.4 Number of science labs equipped and made functional	40	41			40	41
FATA: Number of secondary schools provided with lab equipment for science			150	150	150	150
2) 3.1.1.5 Number of computer labs established	53	53	15	15	68	68
3) 3.1.1.7 Number of science kits provided to schools	614	614	307	371	921	985
Number of math kits provided to schools	614	614	307	371	921	985
4) 3.1.1.8 Number of students participating in US-based Student Exchange Program	101	103	26	27*	127	130
5) 3.1.1.9 Number of EXCEL camps in math, science, English and learning technologies	10	10			10	10
FATA: Number of students and teachers participating in EXCEL camps for science and math			130 students/ 35 teachers	133 students/ 32 teachers	130/35	133/32
6) 3.1.1.11 Development of educational software for math, science, and English					Developed, but never distributed to Core Activities schools	
7) 3.1.2.1 Percent of project trained teachers using new subject-specific supplemental learning materials	30% of trained teachers	75% of interviewed teachers use always or often			30%	75%
8) 3.1.3.1 Number of districts in which formative student assessment systems are introduced	22	22 (3,497 teachers facilitated in assessment material development and use of standards-referenced assessment in the classroom)			22	22

9) 3.1.3.2 Number of project schools using formative assessment systems developed by ED-LINKS to improve student learning	300	341			300	341
10) 3.1.3.3 Number of exam boards with staff trained for standard setting	4	5			4	5
11) 3.1.3.4 Number of trainers from IBCC and exam boards trained to provide support to exam board staff	20	23			20	23
12) 3.1.3.5 Number of district education offices with capacity built to develop, mark, and analyze standards-referenced summative tests to assess curriculum coverage	22	22			22	22
13) 3.1.4.1 Percent of ED-LINKS' supported schools [with science lab enhancement] in which teachers use project provided lab equipment for science	60%	100%			60%	100%
14) 3.1.4.3 Number of science clubs established	300	536			300	536

Appendix 9: Teacher Training and Support

Table 19: Teacher and Master Trainer Responses about the Helpfulness of ED-LINKS

Did you find ED-LINKS helpful?						
Statement/Question	**Participant Group**	**Strongly Agree**	**Somewhat Agree**	**No Opinion**	**Somewhat Disagree**	**Strongly Disagree**
My experience as a participant in ED-LINKS' training helped me in my classroom teaching	Teachers: Roundtable	33	6			
	Teachers: Individual	17	7	1	2	
	Teachers: Group Response[140]		20			
My experience as a participant in ED-LINKS' master training program helped me learn valuable new skills and knowledge	Master Trainer: Roundtables	9	1			
	Master Trainer: Group Response	10				

Table 20: Teacher and Master Trainer Responses on Interactions

Did ED-LINKS affect your interactions with others?						
Statement/Question	**Participant Group**	**Strongly Agree**	**Somewhat Agree**	**No Opinion**	**Somewhat Disagree**	**Strongly Disagree**
My experience as a participant in ED-LINKS training helped me develop better relationships with my students.	Teachers: Roundtable	29	10			
	Teachers: Individual	12	11	4		
	Teachers: Group Response	5	15			
I have been able to mentor teachers I trained.	Master Trainer: Roundtables	9	1			
	Master Trainer: Group Response		5		5	

[140] In some of the roundtables, the participants each answered the question and their responses were tallied, but in other focus groups, a single group answer was chosen for each question. These two styles of response are represented separately in the table as Roundtable (the tallies) and Group Response (single, group answer).

Table 21: Teachers and Master Trainers on Teacher Professional Development

Did ED-LINKS have an impact on teacher professional development?						
Statement/Question	**Participant Group**	**Strongly Agree**	**Somewhat Agree**	**No Opinion**	**Somewhat Disagree**	**Strongly Disagree**
My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional.	Teachers: Roundtable	22	17			
	Teachers: Individual	8	14	4	1	
	Teachers: Group Response		20			
This program helped me learn how to deliver professional development programs, including developing teacher training manuals and creating course structure and content.	Master Trainer: Roundtable	8	2			
	Master Trainer: Group Response		10			

Table 22: Teachers and Master Trainers on reception of ED-LINKS

Has ED-LINKS affected the structure of the educational system? Is advice from ED-LINKS well received?						
Statement/Question	**Participant Group**	**Strongly Agree**	**Somewhat Agree**	**No Opinion**	**Somewhat Disagree**	**Strongly Disagree**
Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training.	Teachers: Roundtable	17	17	2	1	2
	Teachers: Individual	5	12	5	5	
	Teachers: Group Response				12	8
As a result of this training, I have offered advice to education officials at the school, district, or provincial level on how to improve teacher training.	Master Trainer: Roundtable	8	2			
	Master Trainer: Group Response				10	

Table 23: Teacher Responses about continuing to use ED-LINKS

Do you continue to use ED-LINKS?						
Statement/Question	**Participant Group**	**More than once a week**	**Once a week**	**Every other week**	**Very few times**	**Never**
I still use knowledge or tools in my classroom that I received during my ED-LINKS training.	Teachers: Roundtable	20	14	1	3	1
	Teachers: Individual	11	8	1	7	
	Teachers: Group Response		8	7	5	

Table 24: Teacher Training Indicator Table

Selected Activities, Targets and Results for ED-LINKS Teacher Training Activities* Sindh, Balochistan, ICT and FATA						
	Sindh, Balochistan, ICT		FATA		Total	
	Targets	Results	Targets	Results	Targets	Results
1) Number of teachers trained by Master Trainers/ resource persons including PITEs, BoCs	5,000	5,017 teachers trained, 532 teachers oriented (math, science, English)	240	227 teachers (114 male and 113 female) trained by GCET Master Trainers.	5,240	5,244
2) Number of teachers participating in US-based Teacher Attachment Program (TAP)	43 teachers	25 teachers participated; 22 participants in 1st follow-up; 23 participants in 2nd follow-up	28 teachers	11 teachers participated in TAP – 3 Male and 8 Female. (Note: 17 selected teachers could not get US VISA)	71	36
3) Number of officials and administrators trained in Education Leadership & Management (ELM)	766 officials	757 officials and administrators trained; 574 Head Teachers and 183 education officials trained	405 supervisors/ head teachers	405 Agency education officials and head teachers trained as academic supervisors.	1,171	1,162
4) Number of Master Trainers/Resource Persons trained	380 Master Trainers, resource persons	359 teacher educators trained and 90 teacher educators oriented	220 teacher educators	227 teacher educators trained: Math: 64; Science: 100; English: 55; Academic Supervisor: 8 Master Trainers from GCETs	600	586
5) Development of in-service teacher training materials for teachers from Grades 6 to 10 (Establish labs in GCETS in FATA)	Teacher training materials for math, science, English, IT	15 teacher resource books developed; CD on low cost/no cost material developed & copies distributed in 495 ED-LINKS schools	9 labs established in GCETS	9 labs established. 5 science labs, 2 computer labs, 42 computers provided, 2 language resource units established	Develop materials and labs	Completed

Appendix 10: GOVERNANCE REFORM

Table 25: Governance Reform Indicator Table

Selected Activities, Targets and Results for ED-LINKS Governance Reform* Sindh, Balochistan, ICT and FATA						
	Sindh, Balochistan, ICT		FATA		Total	
	Targets	Results	Targets	Results	Targets	Results
1) Development of a framework for education-sector plan for Balochistan	Framework	Completed			1 frame-work	Completed
2) Number of educational managers using EMIS data for planning & management	100 officials	211 officials oriented on the use of EMIS data	50 officials	62 education managers oriented on use of EMIS data	150	273 officials oriented
3) Number of regions in which database coding scheme is synchronized to meet NEMIS standards	3 regions	Completed- scheme meets standards in Sindh, Balochistan, and ICT	All FATA agencies	Completed	All regions	Completed
4) Improved work practices and procedures to support Annual School Census (ASC)	Improved ASC practices, such as annual work plan	Guidelines ASC published; variety of data-related tasks completed; EMIS and IT equipment & networks installed; orientations held	Improved ASC practices	Development of ASC process & procedure guidelines for ASC 2010-11has been initiated & other progress	Improved ASC practices	Completed
5) Number of district education staff oriented as EMIS data collectors	1,720 data collectors	1,133 education officials trained/ oriented on ASC data collection;	186 data collectors	231 staff members trained/ oriented	1,906	1,364 data collectors oriented
6) Number of provincial and district education offices equipped with computers and related accessories	2 provincial and 22 district education offices	7 provincial and 27 district education offices equipped with computers/ accessories	11 offices	11 offices equipped	35	45 offices equipped
7) Number of studies to identify gaps and challenges in existing policy implementation related to teacher education/education management	4 reports	Completed			4 reports	Completed
8) Recommendations to better communicate and coordinatebetween district education offices and provincial teacher training institutions	Improved coordination	Recommendations compiled from policy reports, mentioned above.			Policy suggestions	Completed
9) Number of education officials receiving training by AEPAM on financial	50 education managers	49 education officials trained from 22 ED-LINKS districts	195 district staff	476 education office staff trained in financial	245 officials	525 officials received financial training

management				management workshops		

Box 1. PAKISTAN'S THREE PHASES OF DEVOLUTION

In the last 15 years, Pakistan has undergone major changes in how the education sector is organized. The first major change occurred in 2001, when the Local Governance Ordinance was adopted and devolved significant authority from the provinces to the districts. The second major shift occurred in 2010, when this law lapsed and the 18th Amendment to the Constitution was adopted.

As a result of these shifts, Pakistan's education sector can be categorized as having three phases of devolution: A pre-devolution phase (pre-2001), a devolution phase (2001-2010), and a post-devolution phase (2010-current). Each phase has greatly impacted education management, teaching, and student performance.

Prior to devolution, districts were not responsible for detailed budgetary planning. Inspectorate systems worked fairly well, and political interference was minimal. During the devolution phase, significant decision-making authority was transferred to elected district governments which were often not prepared. Additionally, a significant number of new education management posts were created at the district level, including the office of EDO (currently DEO in Sindh and Balochistan). Districts became financially independent; teachers increasingly applied for posts and transfers on the basis of personal connections, and the exam system changed, with the loss of national exams at grades 5 and 8.

The post-devolution phase, when the 18th Amendment to the constitution devolved many responsibilities from central to provincial authorities, empowered provincial governments to design their own local governance systems, and hold local elections (Lamb 2011). The Provincial Departments of Education also were given responsibility for implementation of national education policies and management of primary, elementary, secondary, and technical education, and for assuming some of the challenges created during the devolution phase, such as a surplus of education management positions. Additionally, many responsibilities shifted from the district level to the provincial level, meaning the authority and power of DEO/DO (Secondary) were reduced after 2010.

Appendix 11: Beneficiary Perceptions of ED-LINKS

Table 26: Student Perceptions on Change in Teaching Styles

Q1: Have you seen any change in your teacher's teaching style in the last year or two?		
Student Information	**District**	**Response**
Student 1 Class 10	Jaffarabad	Yes…teachers come into the class prepared…. They behave like a friend and don't physically punish us… They encourage us to asking questions… teach us in small groups… and we learn… very quickly.
Student 2 Class 9	Pishin	…Before training he was very much like a dictator but… now he is like a friend of students…. encourages us to ask questions…. We share our problems with our teacher
Student 3 Class 9, Girl	Pishin	… Now we have a computer lab which is very interesting and useful… teachers used to read the lesson only. Now teachers involve us in the process… allow us to ask as many questions we can…
Student 4 Class 10, SEP	Nawabshah	Yes, our teachers are more cooperative and friendly now. They do involve students in classroom
Student 5 Class 10	Nawabshah	Basically, I participated in the exchange program and it was a good experience for me…. Change… observed in our teachers' teaching methods… not focusing on rote memory… more activities in classroom….try to make us understand concepts….
Student 6 Class 10, Boy	Loralai	Now teachers have become so good, they make sure that all students understand the lesson. Previously teachers only used to read and make us write in notebook but now they discuss with us….
Student 7 Class 9, Girl	Loralai	Now we have a computer lab; …our teachers teach us with more attention….Now teachers involve us and they ask us to work in a group which is very interesting.
Student G1 3 boys	Shikarpur	now school environment is friendlier and teachers are more cooperative and give respect to the students as well
Student G2 3 girls	Sukkur	participation is encouraged now… more group work, chart work, and more low cost stationery available… teacher interacts more with students… friendlier environment… student attendance has improved. But in last four months, our teacher is transferred so there is no activity in our school.

Table 27: Student Perceptions on Private versus Public Schools

Q1: Do you feel any difference in your school after ED-LINKS and do you feel your school is more friendly when compared to the private schools in the district?		
Student Information	**District**	**Response**
Student 1 Class 10	Jaffarabad	Both schools are good, Students performance depends upon students and not on schools. If a student works hard she will get the fruit… Public School teachers are more qualified than in the private sector schools.
Student 2 Class 9	Pishin	For me, it is a better place than any private school. This is because: 1- No private school has a computer lab but it is in my school 2- My teachers are like my friends and always encourage us to ask questions 3- My school, through ED-LINKS sent me to USA on exposure tour that changed my thinking process. Now I am like a celebrity in the town….
Student 3 Class 9, Girl	Pishin	My school is better than any private school… because we have so many teachers compared to private schools. Our teachers are more qualified than those in private schools. Private Schools are selfish; they just make money. In our school. I believe if a child has firm belief in herself and she wants to acquire education, then the school doesn't matter.
Student 4 Class 10, SEP	Nawabshah	Our school is now more comfortable and friendly than private school and I prefer this school… as it is attractive for education and other activities…
Student 6 Class 10, Boy	Loralai	…Quality of school is dependent upon the quality of teachers and our school has the best teachers. There are less qualified teachers in private schools….

Student 7 Class 9, Girl	Loralai	Our School is also a good school but I always have feelings that private schools are more friendly and interesting than my school. I want to be admitted to private school but we cannot afford (it)… We have computers but don't have a computer teacher that is the main reason that we cannot learn computer courses practically
Student G1 3 boys	Shikarpur	Private schools do not have such facilities like science and computer labs and their fee is also high. We enjoy all the facilities free and we feel better than private schools.. [Problem: The best room in this school is dedicated for computer lab while rest of the rooms are in devastating condition i.e. walls were about to fall, roof were damaged.]
Student G2 3 girls	Sukkur	Students have become more conscious - if teachers are not teaching them well, they actually go to the head teacher to complain…. Private schools are much better… because there are more teachers… teachers give more time to students, …environment is much friendlier…. The upper class opts for kids to go to private school. [Problem: computers were still packed in original plastic sheets which indicates that they have never been used.]

Table 28: Student Comments on Computer and Science Labs

Q2: Have you ever used a computer or science lab? If so, what did you learn?		
Student Information	**District**	**Response**
Student 1 Class 10	Jaffarabad	No. There isn't any computer teachers in our school that why we cannot use computer lab.
Student 2 Class 9	Pishin	Yes, we have a daily class of computer and we have learnt the following skills. - Use of internet, Skype call - MS Word, Excel, PowerPoint
Student 3 Class 9, Girl	Pishin	Yes, on every Tuesday we use computer lab, in these days as our exams are near we are using science lab as well. We have lent many programs in computer lab i.e. Use of internet, power point, MS Word, Excel
Student 4 Class 10, SEP	Nawabshah	Computer lab is available and students use it less frequently. However the science lab is nonfunctional as the number of students in 9th and 10th grade is 300 and teachers are not able to conduct practical work in the lab.
Student 5 Class 10	Nawabshah	I use computer lab as science lab is not functional in school due to the unavailability of science teachers. I personally learnt how to operate computer, searching and browsing, email, MS Word and Excel.
Student 6 Class 10, Boy	Loralai	Yes, but load shedding is a problem; if computers are not charged properly and we cannot use them and miss class. (Mobile lab furnished with laptops)…. We have learnt Microsoft Excel, Word, Word Pad, internet usage and PowerPoint. The best room in this school is dedicated for a computer lab while rest of the rooms are in devastating condition i.e. walls were about to fall, roof were damaged.
Student 7 Class 9, Girl	Loralai	Never, today they have opened the computer lab otherwise it remains closed; you can see computers are still packed. Teachers say that due to load shedding computer lab cannot be utilized. (Computers were still packed with original plastic sheets which indicates that they have never been used.)
Student G1 3 boys	Shikarpur	Yes we frequently use computer lab and we learnt searching of documents, emailing and Word programs. Science lab is also available and we use it but not frequently.
Student G2 3 girls	Sukkur	Yes we used to work in these labs—12 laptops from ED-LINKS—while our teacher was present but not now. So the senior student Nida, who got training, is voluntarily teaching MS Office for computer, but due to the large number of students, it is difficult to train all students. Classes are held in groups of 35 where 3 people share a laptop for half an hour each. Load-shedding, however, limits the usage of computers in school.

Table 28: Teacher Perceptions about Value of ED-LINKS

Table 29: Teacher Perceptions about Value of ED-LINKS

Respondent No.	District	Q6: What did you learn, if anything, as a result of ED-LINKS training that was most useful in your teaching?	Q7: Was there anything you particularly liked about the ED-LINKS training? What was it? Why?	Q8: How, if at all, has your experience in ED-LINKS training changed you as a teacher?
TR1 Female	Mohmand Agency, Peshawar	… ED LINK uses all good methods in learning which improve my way of teaching.	The best thing …was activity based learning and soft attitude of facilitators.	…polished my aptitude to learn and skills….I use participatory methods… Children learn more and more.
TR2 Female	Peshawar	The activity based teaching methodology … to explore some innovative methods of delivery.	…I learned how to react normally when tense … a new paradigm of understanding...	I tried to change my teaching practice and observe (my) mistakes … good impact…on me and indirectly on my students.
TR3 Male	Mohmand Agency, Peshawar	… it changed my concepts about learning…that I have never experienced in my teaching life.	… I haven't attended such useful training in the past	It was really fantastic experience, it reinforce my teaching capacity.
TR4 Male	Peshawar	… teacher, community and student made a triangle (for) ideal school environment to learn. ED-LINKS… completes this triangle…. English training… manual for community participation… involvement.	… financial problem resolution through community… for fund raising via school committee and proper utilization of resources in different situations.	… a bombastic impact on my teaching style… to fully involve the students in learning through interactive… communication...
TR5 Female	Peshawar	…English training… create a linkage and harmony among different subjects…use AV-AIDS…	Merit… in abroad tours … should be repeated.. Teachers should be changed in training and tours… More students…to visit different countries.	I … overcome anger that disheartens the students… better after my self-catharsis.
TR6 Male	Khyber Agency, Peshawar	… useful … training …on professional and practical lines. Now when someone use these methods on child in a proper way it may help to learn better.	Training was normal I have already attend such trainings and all the facilitator use same methods with little bit change.	We know about many and many new things in my professional career but all were from my personal creativity and less was learnt from facilitators. Men always learn from life and personal experiences.
TR7 Female	Bajoor Agency, Peshawar	The training of science and math were very useful.	Training was focused… given on professional style… methods. Attitude of trainer friendly…	… my past methods and patterns were stereotyped and old fashioned. So now I am using the new methods...
TR8 Female	Peshawar	I learned how to operate with limited resources and how… utilized at their best… learned how to manage in bad and worst situation while facing financial and managerial crisis.	…. Teacher… behaves like facilitator and disturbance handler… put students at ease… not stuff everything into the minds of learners… joyful and impressive way… how to use library and dictionary….	… amended my teaching style 100 % … new ways of transforming… sharing knowledge, new techniques (bring) students into the corridor of international competition (with) foreign tours…
TR9	Peshawar	… proper utilization of funds, time management,	… Junior and senior relation management…	Competition in the environment… after ED-

Table 28: Teacher Perceptions about Value of ED-LINKS

Male		and resource mobilization and interaction and contacts with the community for the betterment of school	uplift the school environment with the help of teacher, students and local community	LINKS training.. very constructive… lessens gap between teachers and students.. create interest in math and science…
TR10 Male	Jamrod Khyber Peshawar	ED-LINKS transforms overt and very good teaching norms, especially teacher-student relationships… training at its best.	Discipline in training was very much ideal… respect to the trainees shows..transformation towards students through teachers.	ED-LINKS gives me back my lost knowledge… to concentrate on new knowledge…. share knowledge…
TR11 Female	Mohmand Agency, Peshawar	… build relationship with community… community role in school betterment… be understand and utilized to improve the education system.	ED-LINKS gives a drastic change in my Leadership qualities…	… activity learning has improved the confidence level of the children… produced better results as compared to last year…
TR12 Female	Peshawar	… I consider myself as facilitator instead of a Head teacher or boss to other teachers… friendly attitude with the students… friendly monitors in classrooms… I became more proactive rather than reactive… how to avoid different problematic situations…	The trainers were so good and impressive, their style, delivery, way of communication everything was up to the international standards.	… draws a deep shadow on teachers psyche and their communication and way of delivering lecture, so it also influence my previous stereotyped teaching style.
TR13 Female	Peshawar	Training about science… examples of experience from daily life activities… easy to learn and to be learnt to the students.	ED-LINKS training style and knowledge sharing techniques were very good.	I observe a lot of change in my teaching after the treatment of ED-LINKS training
TR14 Female	Peshawar	… arrange training in… grouped form… The implementation of training… not easy in FATA…tough to practice in this environment.	Group based learning was very useful but I haven't use this practice so far due to school environment.	ED-LINKS training has changed my understanding and behaviour towards my teaching. Other things less applicable.
TR15 Male	Mohmand Agency, Peshawar	No response	Everything was up to the mark like a professional training.	… a good impact on the psyche of teachers; now I always let my students question and brainstorm.
TR16 Male	Awaran	… how to teach in groups was very helpful, in addition the use of charts… very good	Group discussion method… competition among children… method of marking	In past I used enter in classroom with anger on my face but now I enter in my class with smiling face.
TR17 Male	Loralai	Method of Lesson Planning was very useful. We prepared 50,000 lesson plans that was very big achievement… In past teacher was like an emperor and students were like slaves.. students are also human beings and we should respect their views	… group discussion… empowers students… makes them more expressive. Classroom management techniques very useful.	My teaching style (is) totally changed… I was all..in the class but now I give importance to students….. I used to punish my students but now I (am) their friend… teaching style…. converted to student-centered from teacher-centered.
TR18 Female	Loralai	… teaching aids… very interesting; students liked them….no-cost low-cost material very useful…. so many teaching aids…. teaching and learning has become more interesting.	… my focus of teaching was on rote learning but in these trainings… student's participation in learning process is very essential… dividing them into groups… has decreased level of my efforts and I can save my energy.. I don't have to speak all the time.	Now I have become more friendly with my students. In past I used to be active while making my students passive. Now… student remains active and I stay passive

Table 28: Teacher Perceptions about Value of ED-LINKS

TR19 Female	Loralai	… In past we used to read lesson but now we ask student and ensure their participation in learning process….increases confidence in children.	The method of assessment of learning … students test is taken in a group of 8 students… each student is given different questionnaire and also reduced… cheating	Before training I used to punish children. Now I have become friend of my students….. increased their involvement in teaching and learning process.
TR20 Male	Shikarpur	I have a Masters in Education and yet the ED-LINKS training program taught me… newer methods, encourage student participation and involvement. Before, children afraid to write on blackboards… now they … even take initiative. The children are not afraid of me anymore.	No response	…. huge difference in my teaching style…originally, I was a very strict teacher and was even disciplined by head master on being so strict… I am much friendlier, do not use the stick... take input from the students. Initially (I) assigned book reading/ memorization... Now, I explain what is provided in the book.
TR21 Male	Shikarpur	Group work, presentation and Lesson planning	Our presentations during training	Now I can handle number of students easily and with friendly methods, Confidence building.
TR22 Male	Sanghar	Speak English with student so that they can get better idea about language	Interactive especially back bencher/slow learners were asked to participate	More interactive
TR23 Male	Sanghar	No response	No response	No response
TR24 Male	Mir Pur Khas	No response	No response	No response
TR25 Female	Mir Pur Khas	No response	No response	No
TR26 Male	Mir Pur Khas	… Group work is the most useful part of my teaching.	Group Work	No actually, there are 150 children to deal with, so it is very difficult to entertain all the children with this method
TR27 Male	Mir Pur Khas	Nothing special as I was thinking that the training was just like a formality not considering our administrative issue	Group work was the only thing I think can help us to reduce pressure of bigger strength of students we have in schools	I tried hard to implement, but due to the school environment I could not make any change
TR28 Male	Awaran	No response	No response	No response

Respondent No.	**District**	**Q9: What would you recommend to make the ED-LINKS training more effective and useful to teachers in the future?**	**Q10: You attended an ED-LINKS training. Can you remember a situation that was very confusing?**	**Q12: What questions do you have in thinking about that situation? What would you like to know?**
TR1	Mohmand	…programs should be arranged at Agency level	Duration… on daily basis should be less;	How many teachers to be included in next

Table 28: Teacher Perceptions about Value of ED-LINKS

Female	Agency, Peshawar	… people from far-flung areas have… problems to reach in District Headquarters. … Psychological aspects…Teachers don't know much about the psyche of children..	number of days should be increased… trainers run too fast which confused the trainee.	training, and when it will be conducted again in our city.
TR2 Female	Peshawar	Mathematics need very urgent …	No I don't remember such situation.	How many teachers and students have been sent abroad… so far in every province, and how many… from each province in future.
TR3 Male	Mohmand Agency, Peshawar	… duration of this training should be more… repetition of teachers should be stopped… so that new lot of teachers can learn…	Some times facilitator or trainer wants to stuff the concepts into the minds of trainee…	No response
TR4 Male	Peshawar	… trainer was too fast and focused on covering the contents, time was too short to learn…	First they selected my for abroad visit, then… my nomination has been cancelled..	It creates tension… attitude of ED-LINKS was unpredictable…crazy about every thing.
TR5 Female	Peshawar	New trainers, new plans, activities, subjects… create a competition among teachers and students to learn.	Everything was OK	No response
TR6 Male	Khyber Agency, Peshawar	Training duration should be at least two weeks… daily time should be reduced. Arts… should be included....	Nothing was new (in my) experience...trainers should come with new ideas… innovative ways of learning.	No response
TR7 Female	Bajoor Agency, Peshawar	… most important topics: Psycho social and student supports/ physical health topics…next time.	No not at all.	No response
TR8 Female	Peshawar	Social studies, Pak studies, Islamyat and other general subjects should also be included.	… I was confused…but I overcome this with the help of my facilitator.	No response
TR9 Male	Peshawar	… (Include) Arts topics… study tours, summer camps, interactive session among students…	No such situation.	When ED LINK is going to launch another training for us?
TR10 Male	Jamrod Khyber Peshawar	Trainees should be changed every time… duration should be less in hours in each day… increased total numbers of days…Surprise visits to all the trainees to check out the feedback and evaluation… of teaching treatment	Sometimes more questions from trainees waste time and it also mislead from the original topic	No response
TR11 Female	Mohmand Agency, Peshawar	Training should meet the changing requirements of syllabus… contents (address) ground realities… of FATA. Activity based learning	When trainers become rigid for short leave in case of any emergency, it confused the situation.	No response
TR12 Female	Peshawar	Psychological aspects… focused training (that) transforms the students, psycho-social aspects of students learning (addressing) students' psyche…	Almost everything was up to the mark…sometimes trainer ran too fast which confused the trainee. No back up, follow-up...	How many teachers to be included in next training, and when it will be conducted again in our city.
TR13 Female	Peshawar	After that good training, nobody from ED-LINKS visits the school.. (to) check…implantation….	Nothing was confusing	No response

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TR14 Female	Peshawar	…clusters (should be) based within their own cultural group.. person from SAWAT should be trained in SAWAT… female trainees should be called from same cultural setting… emphasize activities rather than lectures….	Duration of lectures at daily based should be less, and number of days should be increased.	How many teachers to be included in next training, and when it will be conducted again in our city.
TR15 Male	Mohmand Agency, Peshawar	… there is no feedback system in this training. I have problems … but no body is in the loop to resolve my reservations.	No response	Teachers should be trained on mentoring, budgeting, and school management after every two months.
TR16 Male	Awaran	There was no Follow-up of trainings it should be made part of project	No response	No response
TR17 Male	Loralai	RPs should be selected on merit. Monitoring and follow-up mechanism should be made integral part of projects…. EDOs should not interfere in the selection of teachers… RPs.	The selected RPs were unable to deliver, even they could not understand the core of the training.	Why such non-professional RPs have been selected. Is the top management correct? Can this type of selection be helpful in increasing education ratio?
TR18 Female	Loralai	Duration…teachers who attended 10 days training could not complete their syllabus. * … all my hesitation went away and I found a new girl inside me who was more confident. * Now I easily participate in mixed trainings and I am not restrained by my in-laws as well	I participated in a training that was mix training of both males and females. I was confused that how I will handle it. I was also afraid that response of my family would be worst.	How I will speak in front of males? What will be the response of my in-laws and husband? This is not according to our culture.
TR19 Female	Loralai	… Master Trainers should be selected from the same subject... 5% Master trainers were not of the same subject; i.e. English teacher selected as a Master trainer for science subject	I was confused…how I will implement No Cost Lost Cost materials?. When I tried it…I found that it was not so hard, students participated…with full interest.	Will it be possible for me to use this technique in my class? It is ladies work and student may make fun of it How I will get such no cost low cost material
TR20 Male	Shikarpur	…include primary school teachers in training, shortening training sessions held by each individual, and avoiding problems caused by load-shedding in future trainings.	… material was distributed very late…we could not prepare ourselves for next day training or homework…. Seating arrangements odd, we could not move easily.	This training is just like other trainings where nobody cares
TR21 Male	Shikarpur	Follow up and sustained effort	The method was so interesting…how we can complete our syllabus with this method in shorter period of time?	This method should be compatible with the school requirements.
TR22 Male	Sanghar	Continuity of training and follow up	Many teachers… were not teaching English… taking much time to ask irrelevant questions?	Selection of teachers… subject specialists… to learn and implement training contents
TR23 Male	Sanghar	No response	I asked… about sustainability and follow up of the training program….	Will it be a continuous effort or just time being?
TR24 Male	Mir Pur Khas	No response	No response	No response

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TR25 Female	Mir Pur Khas	No response	Trainers were providing training efficiently… at some point they were tired; we felt bored	This was a 22 days training… there should be more trainers for training
TR26 Male	Mir Pur Khas	Administration Issues to be resolve to get fruits of training; teachers are busy with… transfers… high volume of children	No response	No response
TR27 Male	Mir Pur Khas	… reduce the political influence in education sector and to increase teacher's attendance…	No response	No response
TR28 Male	Awaran	No response	No response	No response
TG1 4 Male Mbrs.	Awaran	*Except one, all thirteen (13) teachers were of the view that they could not implement this training in classrooms*. Recommendations: - Monitoring and follow up… - Selection of teachers through Head Teachers - Continuity of project (a) priority - Balochi language as a separate subject - schools without classrooms or in bad condition	… reasons for not implementing training: 1- Selection of teachers was not on merit or relevant qualification; 2- *Head Teachers did not allow us to teach new things in our teaching* 3- *No follow-up visits to schools… by any representative of ED-LINKS, RPs and any other department* 4- Materials… for low cost teaching provided (end of) 2010… project had wound up. 5- Science clubs not formed in any school 6- Computer labs established in (only) two schools. [7 computers from one school stolen; now no lab in school.)	In such condition we would like to know who was actually responsible to provide us the relevant and complete information including background of ED-LINKS project, our role after attending the training, overall training arrangements and like that?
TG2 7 Mbrs: 3 Female 4 Male	Jaffar Abad	Recommended: - Continuity of training, at least twice a year - English grammar - Follow up and monitoring… missing. - Selection of Teachers on merit and qualifications	My was about 40 km from my school… no public transport... My husband provided transport.. but… could not (always) provide (so) I could not attend…those days… I missed some important topics of the training.	* Why training venue was selected without considering the better facility of transportation? * Why female staff was not provided the facility of accommodation or pick and drop?
TG3 10 Mbrs: 3 Female 7 Male	Loralai	- Ensure ownership of Government department in every step of the program, starting from designing of training to implementation - no follow-up by Education Mangers - Follow up and refreshers of trainings - Duration of training was short	Senior and junior teachers by their grade and qualification were participating in the same training… made things (terminologies, words) difficult for juniors… wastage of time	* Why the selection of teachers was not made by their grades and qualification? * can junior level teachers apply this training in their classroom teaching?
TG4 11 Mbrs: 4 Female 7 Male	Pishin	- Most of the teachers have completed education though Urdu Medium … only one week training not enough… - A few sessions… were so heavy… that I could	…attended training in Karachi … on Low Cost No Cost teaching Aids…. the required materials (were)not available…very confusing situation	How students will produce Low Cost No Cost Teaching Aids? Will it be possible for me to use this technique in my class?

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		not understand even a single word. - SLOs in English…very difficult to understand. - We were asked to learn pronunciation through Oxford dictionary… but it was so difficult for me… - All teachers should be trained, (not just) some - About 4 to 5 teachers in each training are included because of political interference…		What other teachers will think about me when I will utilize these Low Cost No Cost Teaching Aids?
TG5 8 Mbrs: 4 Male 4 Female	Shikar-pur	Duration of training should be lesser, More focus on class room follow up, consistency in trainings, selection of teachers should be on merit	Training timing was very odd, we were sitting in training hall till evening, I was late and reached at my rural village very late with hard efforts and sources of transportation	Why should they not complete training on time?
TG6 5 Mbrs: 4 Male 1 Female	Sanghar	Selection should be more cautious..considering the expertise/background education a teacher has More follow up visits should be conducted	The training was arranged in Ramadan, and we were fasting. It was very tough to sit in the training and follow the instructions.	Why should not they arrange trainings in other months?
TG7 7 Mbrs: 4 Male 3 Female	Mir Pur Khas	Regular training, School based training and demonstration, Infrastructural support, Sindhi Language for Sindhi teachers	- Training was conducted according to the wish of trainers not teachers - Many teachers want to attend but could not get the opportunity - Training held during busy days of teaching	- Conduct a Training Need Assessment before designing any training - Why not all teachers participate? - Training should be conducted during vacations to save the time for teaching

Table 30: Master Trainer Perceptions about Value of ED-LINKS

Master Trainer Group	District	Q5: What did you particularly find valuable, if anything, about your participation in a master teacher training program?	Q6: Did you change your opinion about any type of teaching practice or approach as a result of becoming a Master Trainer?
MG1 4 mbrs.	Jaffarabad Balochi-stan	… training increased level of our confidence even teachers became very confident after ED-LINKS trainings … how to prepare standard based lesson plans …Student reflection method … group discussion technique… increases confidence in students … activity based teaching.. student involvement significantly increased	Yes, a big change happened in our approach towards teaching… The most important change… was the increase in confidence level. We became negative to positive ("I became a very cheerful person") The same attitude transformed children.. they also remain cheerful and happy during classroom. Now we discuss topics and don't pose any thing on them. In past we were using 100 year-old method of assessment but (now) a very innovative method…that has shown very good result
MG2 5 mbrs: 4 male 1 female	Nawab Shah Sindh	Low/No Cost Material Development Probing techniques, concepts about science clearer How to conduct effective training	Personally we changed ourselves, now…more interactive methods We ask students to leave books and think about the subject (s) Follow up visits of schools: 50% teachers…using new techniques
MG3 6 mbrs.	Quetta Balochi-stan	- Development of standard based lesson plans - Students reflection method technique - Development of No/low cost material - Student-centered teaching method - Motivational tools for teachers and students - Review of modules… to develop activities for student, even without text books - Probing techniques, concepts about science clearer - How to conduct effective training	Yes, a big changed happened: - Our approach shifted from Rote Learning to activity based learning - Our attitude shifted from dictator to facilitator - Dependent learner to independent learners - Including learners in teacher learning process - Follow up visits of schools… observed improved teaching practices - 50%… improved
MG4 5 mbrs: 4 male 1 female	Sukkur Baloch-istan	Interactive, Content knowledge improvement Pedagogical skills	Yes, it improved teaching practices 60% Students got confidence … more aware about their rights. In one school students went to Headmaster with a complaint about irregularity of the teacher
Master Trainer Group	**District**	**Q7: How do you think the ED-LINKS program could have been improved?**	

MG1 4 mbrs.	Jaffarabad Balochi-stan	- Follow-up… very weak, only 9 days follow-up was carried out.. - Management should be involved in the monitoring and follow-up.. - Selection of teachers should be on merit, in training there were some teachers who were not of the same subject: - In science… in a group of 35 teachers 10 to 12 (about 30%) used to participate who (had no background in) the subject - A very lucid example in (one) school where a teacher who had been teaching Math for last 25 years was not selected for training …more focus on formation of PLCs (Parent Learning Councils) to decrease political interference in selection of teachers
MG2 5 mbrs: 4 male 1 female	Nawab Shah Sindh	- Selection of teachers… according to their qualifications… 30% were not qualified …Work on administrative issues - Improve monitoring and follow-up of implementation - Teachers should be made accountable… report child development periodically - Examination/Assessment system should be reviewed and monitored properly - Examination boards should have similar trainings as teachers were receiving - Headmasters … spend at least one year in same position to implement design - Training content should be more simple and realistic as teachers are not fully prepared for different terminologies and methods - Coordination between interventions and organizations… requires more attention - General environment for training not conducive at Agha Khan Institute; small children's chairs (for) a loaded training.
MG3 6 mbrs.	Quetta Balochi-stan	- Why ownership of program was not given to government departments? - Why coordination among partners was not given the due consideration? - At district level: three different tiers/departments involved in ED-LINKS but they do not know the role of each other… created confusion many times… We have Prishen office but not considered by ED-LINKS… separate ED-LINKS office established; if 50% of resources were provided to PITE office: same results with more sustainability… - Relevant professionals should be selected… appointed at key ED-LINKS positions - Intensive follow up by Resource Persons - Develop Provincial database of Resource Persons, Master Trainers, trained teachers (for use in) similar activities--avoid duplication - Training material… not delivered to trainers… especially (for) low cost materials… none of partners took responsibility
MG4 5 mbrs: 4 male 1 female	Sukkur Baloch-istan	- More follow up; more IT training are needed, student teacher rations should be improved, furniture and other infrastructure support, - Computer should be accompanied with a professional IT teacher - Math Kits should be given with appropriate training - Marking system should be given more attention - Training should be announced, invitations well in advance; training hall should be comfortable for learning purposes - We went in training in hurry with no preparation, and we did not feel comfortable in training hall

Table 31: EMIS User Perceptions about Value of ED-LINKS				
EMIS Respondent No.	**District**	**Q1: What was valuable, if anything, about your participation in EMIS training?**	**Q2: What changes did you make, if any, as a result of your EMIS training?**	**Q3: Do you report the results of your regular school site visits to EMIS cells?**
ER1	Sanghar	(Learning about the) Education Policy of Pakistan; use of funds efficiently by proposing innovative ideas…	There were funds in education budget that were unutilized every year. I prepared some proposals and submitted to higher authorities for getting approval and some of them I have implemented accordingly, especially construction of damaged buildings	…EMIS cell is most important department now in the district as everybody from the province asked reports from us, and we used to give quick response
ER2	Peshawar	The most valuable thing in this training was Data Management System and its usefulness for education department…the training was very useful but due to some technical language I felt some problem.	I will consolidate all the information concerned with my jurisdiction, and ask the relevant persons to link it with the main server room in EDO Education Office, and share it for everyone to use this information…	Yes, to some extent we report the results of schools, but it never works …as there are lot of problems regarding compilation of data… Load-shedding, non-technical staff of computers and time management during routine activities was the major problems.
ER3	Jaffarabad	We learned how to monitor schools and how to ensure quality of education in schools. We also learned about the application of low cost no cost trainings…Before the training we were not aware of the use of BEMIS data. Now we feel that the data is very crucial as we get book, funds and other equipment on the basis of data.	Actually I don't use the EMIS data we hand over data in hand written form to EDO Office. DEO has deputed Junior Clerk to computerize data.	No. I send my report to DEO Office and in some cases to Director Education
ER4	Sukkur	Nobody particularly attended EMIS training, it was part of the training we got in management training	Now we are more frequent users of computer and other IT equipment like Email…	Yes, we used to collect data quarterly to update our data base, and then we report it to Provincial office and we also disseminate it between all stakeholders

EMIS Respondent	**Q4: Can you directly access the EMIS**	**Q5: Have you used information from EMIS to advocate for more**	**Q6: What do you use EMIS data for, if**	**Q7: How do you think EMIS data can be used more effectively by**

No.	database?	funding for your school(s), district, or the education sector?	anything?	your district/province?
ER1	The DEOs cannot have direct access, but they can come to our office and collect whatever they want. And the practice is, we provide data in CDs to all for their planning purposes	YES, EMIS is now a major source of planning and information sharing for budgeting and funding	(No response)	Taluka should have also a proper system of EMIS at their own and we should be the district level body to consolidate.
ER2	No I can't because …of energy crises, and non-provision of technical equipped computer operators in the offices, and schools, even the data of main server if accessed, is not updated	No because it has lot of problems… So without proper information how we can advocate? Education department is recommended to take serious remedies about up gradation and operational aspects of EMIS system, and data management and its timely updating	It is just used to know the strength and the result of some of the schools, whose administration update the data timely; otherwise it is of no use…	Education Department should integrate, update, and timely manage this data on a Provincial and National data grids, which can be shared with all the stakeholders in this country…
ER3	No, only [the junior clerk] can access it	Yes we do, we get computerized reports from DEO office and make final recommendation on the basis of those reports	Teachers bio data, number of teachers, etc. The MIS also provides us useful information on expenditures and fund required for future. Mainly DEO office uses the data for analysis, but during flood all records were destroyed.	1) Technical staff should be appointed, in our district a junior clerk has been deputed for this job. 2) Data of all schools should be interlinked with the district and provincial data. 3) Data should be updated on regular basis.
ER4	Yes everybody can collect relevant information through proper channels but it is not yet online with access to everybody	Now everything and every type of planning and propositions are depending on EMIS	For planning, monitoring and reporting	Each officer from school to district should have proper computer and an operator, and it should be linked to each other so that the information collection and sharing could be quicker and efficient

Table 32: ELM Perceptions about Value of ED-LINKS				
ELM Participant No.	**District Province**	**Q1: What was most useful about your training?**	**Q2: Have you applied the learning in your job?**	**Q3: Do you recommend others to undertake training?**
LR1	Mir Pur Khas	School Improvement Plans; Methodology of Training; Management principles; Not creating favoritism; Seeking participation in decision-making; Headmasters to support teaching process not just management	Teachers worried about regularity, punctuality Arranged an Indian motivational movie for all children—theme: every child has potential; created a good environment. We used to arrange such types of movies every week.	Yes: Selection of teachers and headmasters should be done through pre-testing system so that qualified persons participate in training.
LR2	Peshawar	Professional attitude of trainer… draws a differential landmark which clarifies difference between trainer and a teacher Brainstorming techniques from this training.	Yes… The environment of the training and its application in the field has some differences that can be cover by the support of education department.	Yes… even arrangement of training was very systematic, … training makes over the abilities and polishes our old and stereotyped learning.
LR3	Peshawar	Subject focused and new techniques of teaching Addressing learning abilities/disabilities to keep them on the track of competition.	To some extent… because due to rigid environmental and technological forces all of the learning are not possible to apply.	Yes… trainings provide very supportive and fruitful impact on learning's.
LR4	Peshawar	The best thing is that they have given computer to the students and provided proper training to the teachers.	Yes but not that much properly.	Yes, because it is the best way to create close relations between the teachers and the students.
LR5	Pishin	Understanding Management skills Team building and team work (for) building friendly environment in my office	Yes I selected Boys High School Noabad and applied all techniques in this school. We also formed Science Club that is very successful.	Why not, what I have learnt: I would like that my colleagues learn those skills (for) their careers…harness abilities of teachers.
LR6	Peshawar	Better to learn from the most experienced people…"out-of-the-box" thinking; sending students with teachers to foreign countries.	Yes… joyful learning, brainstorming, interactive sessions, etc but due to high student-teacher ratio it doesn't work in a constructive way.	Yes… fresh thinking and constructive treatment for teachers. Boost psychological aspects of teaching methodology.
LR7	Peshawar	It was best to send students with teachers to foreign countries… practical, interactive approach to be socialized from FATA to world.	Some learning applied, but due to operational and financial issues in the education system we are not able to fully apply these learnings.	Yes it is very useful to uplift students in arena of international competition of science and technology—best every 2 years
LR8	Sukkur	Most useful is change in management style; we did not get EMIS training but we were given computers and EMIS support	Leadership and Management skills… more vigilant and supportive rather than BOSS; We use our office computer more now.	Yes.. improved efficiency of our offices; recommend for all designators in education including primary schools
LR9	Pishin	Most useful: School Management; Effective coordination of staff; community participation; documentation; School Development Plan	Through school development plan I have arranged the facility of drinking water for my students.	Yes, I strongly recommend that this training should be provided to all managerial staff.

Leadership Respondent (LR)	District	Q4: Do you think this training is linked to professional development of teachers and improved student learning?	Q5: Did your efficiency as a manager improve? How?	Q6: If we plan such trainings in the future, how can we improve them?
LR1	Mir Pur Khas	Yes, but the follow up mechanism should be implemented and transfer should also be banned after trainings at least for one year.	Yes, a good relationship with teachers and students..	Selection on merit basis, Pre-test to be conducted, training to be arranged at District level rather than Karachi; resources saved; more participants can be trained, regular follow-up and reporting
LR2	Peshawar	Learning landmarks set out by trainers highly correlated with professional development of Officials from education department	The training buffed up my life skills, improved my learning efficiency; look at things from different angle; awake dormant abilities.	Extend the learning; cover what has changed; repeat every 2-3 years. ED-LINKS needs permanent management and data links with education department.
LR3	Peshawar	Yes…as officer from Govt. dept, we are less focused on learning by doing and transformation of learning;	Yes, I have attended some departmental training that is stereotyped; provided no usefulness—compared to ED-LINKS excellence	It can be improved by discussion with Officers/Officials from Education department before conducting such trainings.
LR4	Peshawar	Yes it is closely correlated with professional development of Managers, teachers and administrative persons.	Yes, I have learn how to done work with and through other people in an institution.	I think this is enough to train the teachers… Students should be sent for at least 6 months.
LR5	Pishin	We have shortage of teachers who are forced to teach three subjects; not justifiable but we are helpless	The training increased level of motivation; I felt a new spirit in me; I implement new techniques organizing my day-to-day activities	Training Need Assessment of all cadres before project launch; Project funds should not be shifted to other project. Separate training for males and females. Whatever promised must be implemented. Computer labs promised for 9 schools; only one lab provided. Creates doubts.
LR6	Peshawar	Yes; highly linked with professional development and directly associated with students learning. Provides a unique method that will improve the students learning if applied in true sprit and form.	Yes, training has a dramatic impact on my efficiency as a manager, and I also learn many new things.	Changing the trainers, because every trainer has some new way to do things; include psychological aspects of training to understand the psycho social issues of students; appreciate facilities provided like girls hostel; science kits, English lab etc. Mobilization very strong and relations within the government very good.
LR7	Peshawar	Yes of course it is.	Training leaved a strong impact on my previous learning; new way of doing things; joyful learning.	More emphasis on psychological and ethical aspects of the learning. Space to keep learning materials was an issue.
LR8	Sukkur	Yes, 50% teachers changed; Matriculation result--evidence of change--improved 60%. Marking system, paper setting where we apply Bloom Taxonomy; paper checker checks papers accordingly--due to ED-	We received all IT equipments, EMIS system fully functional, prepare report in a short time, good feedback from teacher community—not only due to ED-LINKS, other initiatives from Gvt. of Sindh, other donors—however EDLINKS played quite a good role. We are	More IT training should be added in it as it is the most useful part we got; Also some exchange visits within the provinces of Pakistan and even neighboring countries

		LINKS	not sure about the exact percentage but trainings, equipment support were game changers.	
LR9	Pishin	Before ED-LINKS, I had no idea of teacher's motivation but after (now) I find myself comfortable to guide and motivate my staff, enhancing performance of teaching and learning.	Now I have learnt how to delegate the responsibilities to my other staff that improved overall performance of my school.	Head Teacher of High School has responsibility of Drawing and Disbursement officer (DDO): should receive planning and budgeting training. Include training on School Management Committees

Appendix 12: Stories from Teachers, Master Trainers and Observers

TEACHERS AND MASTER TRAINERS' STORIES

Story 1. The importance of cultural sensitivity: Shame and unexpected outcomes from a teacher study abroad program in FATA (Teacher Attachment Program, TAP)

"Mohamed," 45, is one of the 37 teachers selected as possible TAP participants who did not make the final cut. A science teacher in Khyber agency, Mohamed, who wears a small beard, found the situation very confusing. To this day has not been able to forget the shame and sorrow of the experience, despite his gratitude at having been able to attend an informative ED-LINKS sponsored workshop on science – his first professional development experience ever.

According to Mohamed, ED-LINKS staff told him that he had been selected for a USAID exchange program. "They said, 'Please hurry and make sure your passport is ready in 15 days.' So I went to the passport office many times and paid extra money and got the passport on an urgent basis. I was very happy.

But after a month, the ED-LINKS team again came and said, 'You can't go.'

I asked, 'Why?'

They said, "Because of your age."

I had completed my preparations. I had told the whole community I was going. That was a terrible condition for me and I can't forget. The people started having suspicions. One person came and said, 'Why aren't you going?' That person was thinking, 'You are fooling us, you are telling a lie'."

According to the Pashtun evaluator who conducted this interview, in the Pakistani community, when a person goes abroad a person feels proud. When he can't go, he feels shame. When this teacher's dreams weren't successful, he felt shame and sorry – he was dreaming he could do a lot of things in the US. Mohamed's message to USAID is, "Please do your homework."

Story 2. Study Abroad Program (TAP) facilitates female empowerment in FATA

"Bibi" is a teacher in her early 20s who has become a role model in her village. She is an energetic woman with sparking eyes, said the evaluator who interviewed her, a Pashto-speaking woman from the province of Balochistan.

Bibi reported that her students used to be afraid of her. They couldn't ask her any questions, just like she couldn't ask her teachers any questions. Now Bibi realizes questions are an important part of learning.

"Nowadays, first of all when I enter my classroom, I start to talk to my students about their families. And the fear of the children has gone down. Then I sit all of the children in a circle, and I sit in the middle, and then I start working. With this situation, the students ask questions and learn more. Now the students score better, and their confidence has increased, and now they can talk with me."

Bibi participated in ED-LINKS' teacher in-service training, computer training, and the TAP program. When she visited the U.S. as part of the TAP program, she learned a lot of things, she said. "I learned how to deal with the students. I was very surprised the teachers (in the U.S) had a lot of stamina and

dealt with students one by one. Now I am also trying to adopt that attitude with my students." Bibi also began having students use the computer, not just telling them about it.

Bibi said she was allowed to travel to the U.S. because her parents are in favor of education, and because her school principal had asked them to let her go. As a result of visiting the U.S., Bibi has gained social status and feels very proud.

"When I returned back (to FATA), every person warmly welcomed me. A lot of people from my village came and asked me about the people of the USA, and how was the teaching practice, because it is possible that a lot of people are brainwashed with their religion. But I said, 'No, they (Americans) are very nice people. I learned how to teach.' Many people of my village, the males, came to my father, and said, 'Ask your daughter the procedure to go to the USA. We want our daughters to go.' But my father said, 'There is a test. You have to clear it before you can go'."

The evaluator who conducted this interview believes Bibi's story signifies a significant change in FATA. "People in FATA have conservative minds. They have no facilities. They build their homes in lonely places, in mountains, where there is no electricity and gas. When you have no exposure, your mind is conservative.

I didn't believe it at first. I said (to Bibi), "You are wrong, you are telling a lie." But the teacher (Bibi) said, 'No, this is the situation. Do respect, and get respect.'

She (Bibi) could go to the U.S. because the reputation of the ED-LINKS is very good, and they gave a lot of respect to the trainees. This is a girl who wears *niqab,* and can't go alone to her uncle's house. Now she can go to another country. It's a very big change. Every person, every project has weaknesses. But one thing about the ED-LINKS team, their mobilization – their public dealing – was very strong. The parents believed the ED-LINKS team.

Before I visited FATA, I thought it was a very zero area. But when I saw girls of 15 or 16 years of age allowed to go to the U.S., it is a very big change. Even in Karachi two or three years ago, parents were not allowing their girls to go out of the country. It is a very, very huge number, and a great change for FATA that people allowed their girls out of the country without males. It is a success story for all of FATA. If I went to my uncle (in Quetta) in this situation, and said, "Please let me bring your daughter with me to Islamabad,' he would not allow."

Story 3. Motivating principals: An education manager successfully applies ED-LINKS training in ICT

Dealing with unmotivated school principals is an on-going challenge for Waheed, a no-nonsense, self-assured man who has been an EDO in Islamabad Capital Territory (ICT) since 2008. Waheed oversees 79 principals in his sector, some of whom are more effective than others. On the day an evaluator visited him, 15 people were waiting for Waheed outside his office. One person had been waiting three days, to discuss a mix of personal and professional business. Another person was waiting to request his school be expanded to the master's level.

One principal in particular was difficult to motivate, Waheed recalled. About 70 percent of the students at his school, which was an elementary school, failed their classes. Waheed wasn't sure what to do, or why the student pass rate was so low.

Last year, after attending an education and leadership management course and EMIS training in 2008 and 2009, Waheed decided to apply some of what he had learned in dealing with principals. Although he faulted the training for not including emotional intelligence or personality knowledge, the training did

include information on motivation, which was useful, Waheed said. Waheed talked to the principal in person, and tried to find out more about the situation, a practice that was new to him.

"I came to know that the problem was that he (the principal) was not present (at the school) all the time, and had domestic problems," Waheed said. "So I counseled him." Now, 60 percent of students at that school pass their exams – an improvement of 30 percent.

Waheed said he also counseled another difficult principal, a 56-year-old woman who specialized in English and was afraid to tell him she lacked enough teachers. Waheed encouraged her to talk and tell him about her problems, and found out she was sometimes teaching every subject by herself when no teachers were available. The student pass rate at her school as 70 percent.

"She was not confident enough to tell me," said Waheed, who helped the principal put better teacher management practices into place. "Today she came to see me, to tell me that yesterday she found out her students' pass rate was 100 percent. She was very excited and happy."

Story 4. The Case Study of Rahim – Master Trainer overcomes teacher resistance in Sindh

"Rahim" lives in Nawabshah and has a Master's Degree in English. He is a High School teacher at government high school Bandhi, district Nawabshah, Sindh. He joined the school in 2001, and since then he has taught the subjects of English and math. In 2003, he was selected by the British council as a primary school trainer, and he imparted trainings for one month. Due to his experience, he was called by Executive District Officer Education (EDO) to take a short test in Nawabshah. After passing this short assessment, he was called to Sukkur for detailed scrutiny. In Sukkur, he was assessed by the representatives of Agha Khan University Institute of Education Development (AKUIED), ED-LINKS and the Provincial Institute of Teacher Education Sindh. It was a written test to assess the skills of English language (writing, speaking, reading and listening). Moreover, in an interview, they assessed his capabilities as a trainer through questions regarding training skills. Later on, the head master of his high school was informed by PITE that Rahim had been selected as a resource person for a training program sponsored by ED-LINKS.

He attended four weeks of training at AKUIED Karachi. Then he was asked to go to the field and visit schools and prepare some model lessons for English teaching. These lessons were prepared on standard based lesson planning (SBLP). It was a method to design lessons according to the curriculum standard. Then he went to Hyderabad for two weeks of training on language skills. The whole training program was comprised of content knowledge of English books in secondary schools, English teaching, and pedagogical skills. He also learned the skills of a good teacher and trainer such as how to handle difficult situations, to prepare before teaching and training, to be a role model, and to tolerate, moderate, and bring a positive and friendly attitude.

After obtaining training, he came back to his school and then taught the training to 30 teachers of secondary schools in district Nawabshah. After assigning that training, he received instruction from PITE to train 30 teachers from different secondary schools of district Kandhkot. Rahim was little hesitant to go there due to the law and order situation and due to the stories he heard about the teaching community in that area. Eventually, he decided to go and impart training as per the design and guidelines provided by PITE, AKUIEDI and ED-LINKS. He was lead trainer, and there was another co-trainer "Mr. Khan" who was a local teacher of that district (Kandhkot).

He reached the center by traveling 320 kilometers from his hometown, and he was not familiar with the location. Kandhkot is a tribal area near to the border of Punjab and Balochistan provinces. The major tribe in the area is the Baloch tribe, which is considered harsher than those in other parts of the province. A day before the training day, an incident happened close to the training center. There is long-

standing hostility between two local tribes. They both exchanged shots, and a big fight happened. Eight persons were killed and several injured. The environment was very tense, and nobody was willing to come for training. The coordinator called Rahim regarding the situation and asked for him to shorten the training duration. He contacted his co-trainer regarding the situation. The general impression was that the local teachers did not take interest in such types of trainings. Nobody was in the favor of training. But Rahim was energetic and motivated, so he decided to conduct training.

With mixed feelings of fear, he started training on the prescribed day. Due to the tense situation and overall behavior of the teachers, there were only 16 teachers out of 32 in the training hall. The senior teacher among them was a head master who came to such training for the first time. There was a female teacher also. All the teachers suggested to Rahim that he should not continue training. They will give a positive feedback about him. He should pay TA/DA and go back. Hesitantly, he started training and he decided by himself to take the task as a challenge.

The female teacher was completely ignoring the training. She said that she will not participate in group work as there were all male teachers. The other teachers were busy listening to phone calls, making jokes, acting carelessly, shouting and sometimes behaving aggressively. Every teacher belonged to the tribal clan and had also some political connection. Everything was unfamiliar and new for Rahim and he was worried that if the teachers did not respond well he might not be able to continue this training for seven days as per design.

On that first day of training, he decided to follow the instructions he was given during his own training to keep himself cool, calm, tolerant, appreciative, interactive and respectful. The responses of the local teachers were initially very unsupportive. They were not participating, even in the introductory sessions, and expressing laziness and negative attitudes toward training. They were not following the sessions and not participating actively in the activities assigned to them. They were not taking notes and were always complaining about the logistic arrangement, overall system. They were asking to leave and sometimes behaving angrily toward the trainers.

In spite of all this, Rahim behaved very professionally with them and appreciated their small accomplishments during the training. He made some jokes to amuse them, and did some small sessions according to the convenience of the teachers. He withstood all the irrational comments calmly and showed respect to the teachers. He provided them with some new, simple methods of teaching on topics such as how to handle tough students, slow learners and back benchers. He took sessions on group work, model lessons, activity based teaching skillfully. He asked them to prepare mock lectures and then asked participants to behave like children to practice. He tried to speak English as much as possible and asked them to speak as well, so that they will be able to ask students as well. In the initial two days, he developed a rapport with the teachers, and then he explained the concepts of English teaching. He narrated difficult topics of English teaching in simple ways by using low cost and no cost materials. He gave some tips to teachers to increase their knowledge about the English language, like listening to radio, reading newspapers and speaking with students regularly. He asked the teachers to practice on their own before teaching pupils.

On the third day of the training, the number of participants increased and now there were32 (100% attendance). According to him, the teachers asked their colleagues to participate as it had been a good experience for them in the first two days. The female teacher was now very eager to participate in all the activities with male counterparts. She prepared model lessons and demonstrated confidently in front of male teachers.

The teachers and their leader (head master) - those were not willing to even listen to him at first and who did not take him seriously- were completely changed at the end of the training. They were very interactive and serious during the last days of training. They were speaking English, not very fluently, but with confidence. According to the trainer they offered gifts and food to him in later stages. He was

amazed by viewing the changing behavior of these same teachers. According to Rahim, they expressed the change in their feelings and behavior during the training. They told him that they were not clear on basic concepts of English before the training. There were many misconceptions like with grammar. They got content knowledge and pedagogical skills. They told him that the training improved their knowledge, skills and attitude towards the profession of teaching. They promised him that they would take the job seriously now and they will keep in touch with him. He quoted "the comments they gave were a medal for me". The comments were "We will make you our tribe's head, we will put *turban* (cloth on the head of the tribal leader) on your head and we will send you on camel to your hometown (farewell with most respectful way). He said "they came to the bus stand to see me off".

Rahim could not make a follow up in these schools, but he received positive feedback from the visitors of these schools. The teachers are still sending him SMS of gratitude and respect after two years. Due to his positive experience, the stereotype has been changed and two local teachers became Master Trainers in the same program in 2010.

Rahim explained that the story of changing behavior was interesting and a new thing even for him, as he took the assignment reluctantly. And now he is motivated to contribute to improvements in teachers' abilities and knowledge. He applauded the efforts made by ED-LINKS to provide trainings to teachers in rural and remote areas. He recommended that the teachers at school levels should be provided with fully equipped computer labs with internet connections. Through these facilities, the teachers of interior Sindh would be able to get exposure and could be connected with the rest of the world. They will be able to conduct academic research which will eventually benefit the students. He also recommended a regular mentoring process for the teachers for support and monitoring purposes.

Story as recounted by
Fellow teacher
Nawabshah, Sindh

Story 5. Junior teachers as change agents

In Balochistan, as in other provinces, female junior teachers usually hold the least influence in middle and secondary schools. Yet sometimes, such teachers make the most effective master teachers. They can be comparatively open to new ideas, energetic, and devoted to their teaching, since women have fewer options than men for secondary employment in Pakistan, said an AKU-IED staff member.

In selecting Master Trainers in Balochistan, AKU-IED staff said they deliberately selected younger (less than 40 years of age), junior, female teachers to participate in the Master Trainer program. These teachers, who numbered about a dozen, were given extra support to "face elderly people in their schools" and received once-a-week mobile and/or email contract from AKU-IED staff once they returned to their schools.

In some cases, EDOs were angry their favorite teachers were not selected and withheld the salaries of the junior teachers. Senior teacher were also sometimes angry at not being selected. An AKU-IED staff person reported the following exchange with a teacher who wanted to be selected as a Master Trainer.

"Why should I select you?" said the AUK-IED staff member. "Because I am always selected for trainings," replied the teacher. "Then I will make sure you are not selected," replied the AKU-IED staff member.

The AKU-IED staff person reported that the majority of junior female teachers (i.e., about 70 percent) were able to initiate change in their school, despite challenges. "We told them, 'You will have to face those troubles. But change will come slowly.' And they did."

Story 6. Gender and risk: A woman teacher in Balochistan faces threats for attending training

"Ms. Nazia" attended a joint training session in 2009 on English teaching methodology. At the beginning, her husband dropped her off at the training, which was in Lorali City about half an hour from where she lived in a village in Lorali. Once there, her husband saw that men and women were together in the training session, but remained silent. But when she reached home in the evening, her husband angrily asked her why she attended the training. During this discussion, the in-laws came to know about the joint male/female training. They asked her not to go anymore. But she asked them to allow her to continue to go to the trainings. Despite their opposition, she attended the next day's training. It was a courageous act, because it could have had serious consequences, including being killed. She said, "There was a possibility my husband would have killed me for that."

She faced serious problem when her in-laws came to know and the strictly opposed this type of training due to cultural standards in the community. In Pishin Pashtoon community doesn't allow their females to interact with other males. Now this was very difficult situation for her as even her life was at stake, she had death threat from her husband and in laws. She also had to face bad comments from her in-laws for a very long period, for months. She didn't say, but they could have said something like besharam (urdo shameless).

Her husband took her to the training again the next morning.

She told us that she was so interested in receiving the training as the training seemed very interesting and useful to her in the initial two days. She shown her courage and kept on attending the training sessions. She also attended the refresher course after three months, at which time her husband and in-laws had begun to accept the training. She also tried to make her in-laws and husband understand that it is not a bad thing to interact with male community for the purpose of education.

With the passage of time her in-laws understood and she was allowed to participate in the training with proper veil on her face. And she proudly said; see now I am sitting in front of you in a separate room and I am not afraid of anything. Now my parents and in-laws understand that for a good purpose like education interaction of females with male community is a not bad thing.

She further said, even this has provided foundation for other female teachers and if such a program implemented again, almost all female could participate without any hesitation. She also pointed out that this can be witnessed in today's meeting where females are sitting among males with full confidence. "Now it is not difficult for female teacher to participate in such trainings. You can see in the second room, where female teachers are sitting with male teachers."

She learned how to apply low-cost, no-cost trainings, and applied it in her school, where students average 45 students per classroom. Students were very interested in this activity and it increased the learning level of students, and their participation. She said, "The group learning method is an excellent method. Students are asked to speak English with their colleagues. This this method, now I can save my energy, because now I don't have to speak a lot in front of children." Her irritation with students has decreased.

It was also observed in other districts as well. In Pishin, Loralai and Jaffrabad we asked teachers whether they would like to sit among males or want to have separate meeting. The reply was the same, in all three districts female teachers preferred to sit with male community. As the female community is not heard in this community, they fully utilized this opportunity. This was evident in joint meetings were female participation (despite of the less in number) was more than the male community. In Pishin there

were only four females but their participation was more in terms of responses than the male community.

Evaluation Team Member's Commentary: If the husband wasn't educated, this incident could have happened. This is an example of a social change taking place, in Balochistan and Fata. It encourages other women. We asked female teachers in all the Balochistan districts whether they wanted a separate meeting among females, but all the teachers said we are comfortable with males. This was a result of the ED-LINKS program because there wasn't another training in these schools.

Story 7. Negotiating family resistance and overcoming gender barriers to participate in TAP: One FATA Teacher's Story

"I heard ED-LINKS was starting to select teachers and students for a study abroad tour. I thought, 'Why not me? Why can't I go on such a tour?' I started working on it and prepared myself for a test and interview, and found out how people would be selected.

So I appeared in the test and was chosen to visit the USA. It was a moment in my life when I wept with tears of delight and sorrow.

I was delighted at being selected, and sorrowful at the prospect of upsetting my family, which due to some religious norms doesn't like the USA. I thought they well never allow me to go on such a tour. My excitement died when my father called for me. He had heard I was selected from somewhere. I was depressed, and afraid my father would create a hurdle. I talked to my brothers and mother and tried to get them to support me. Nobody was convinced. I was discouraged, and thought I would never have such an opportunity come again in my life.

My sister asked about how useful the visit would be, and whether other females would go from our area. I told her the entire story, using logic, and convinced her to support me. So we went to our mother and convinced her there would be no problem with wearing *hijaab* or male interventions. And I said more than five people from our local area would go on that visit.

I argued this would be international exposure for teachers and students, and if I missed the chance some other teacher from our school would be selected. Finally my mother was convinced. Now the problem was my father. We went to him with our mother, we convinced him with some examples and told him that America is not our enemy and nobody can harm us and the tour is just for exposure and without any cost.

He said, 'I will decide tomorrow morning and will tell the final decision to your mother.'

The whole night was like an examination for me. I was like a child whose exam result are about to be publicly declared and who prays for passing marks. The next morning my father called me, and said he would allow me to go with some restrictions which I was advised to follow. It was a very joyful moment in my life.

So I prepared my bag for departure. My sisters were very happy for me. They supported me in everything. On the final day of the flight, I traveled for the first time in an air bus. It was all new and amazing for me. I felt like a heroin of a film. I was very confident and eager to know and see the new world in the USA. After landing, we went for a rest in the hotel. This was a new world for me, which I had never ever seen even in my dreams.

So I purchased many gifts for my family and colleagues in the school. When we came back (to Pakistan), every member of my family was there to welcome me at the airport. My family and colleagues were eager to listen to stories about the USA and our stay. I shared all of the fun I had had, and the new and amazing world I had visited. So this was a bombastic achievement for a lady whose family has certain

taboos and religious bounding and cultural norms, and doesn't like the USA as a friend. This is the end of my story."

Story 8. Gender-related and professional challenges addressed by management and leadership training

(Commentary added by field evaluator)

Ms. Farah, around 40 years old, is a head teacher at the Government Girls' High School in Pishin City. Before her promotion to head teacher (where she is at the 18th government grade scale), Ms. Farah was a classroom teacher with 15 years of experience teaching English. She said that her promotion was made purely on her exemplary performance as teacher.

Ms. Farah said that when she received her selection orders to be head teacher, she felt confused about how she could she manage such a big institute, which has more than 1,000 students. She had no experience, training and knowledge of management and administration. As this school is located in center of the city, everybody, including the local community and senior officers of the education department, expect good results from this school.

Ms. Farah said she did not know how to deal with her teaching as well as her non-teaching staff. In this difficult situation she come up with an idea and decided to seek help from the senior teachers of the school. Thus, she conducted a meeting with them and asked them to support her in the school management affairs, as she did not have any experience and training of that position.

She made her request to senior teachers in good faith and to promote the culture of team work. This effort will improve the quality of teaching, which then will enhance the image of the school among students, parents and local community, Ms. Farah told the teachers.

But the teachers took her request as a weakness. They exploited the situation and Ms. Farah's inexperience and trust. They gave themselves extra leeway and benefits (i.e., leaves of absence without any reason, a casual attitude towards official business, arriving late to the classroom.) This is the normal culture in our government institutes, where there is no sympathy for weak leaders.

Ms. Farah said that at so many times she tried to address this matter, but could not because she had no real ideas and skills to deal with such a situation. Most of her time was spent in handling administrative matters.

Dealing with financial matters was another new area and a big challenge. Clerical staff also realized that Ms. Farah did not know even the basics of this topic. Therefore, they created so many problems to her. For example, they prepared faulty budget plans and financial reports, released funds late, and were non-compliant with regards to queries of reports.

The performance of the school declined with every passing day, and Ms. Farah was getting pressure from parents and District Education staff.

To address these issues Ms. Farah started spending more time in the school, and due to this her family matters became disturbed. So many times, her husband showed his anger and aggression to her. He told her, "This will not be acceptable to me. You cannot continue this practice of sitting late at school for any longer time."

He further stated that she should take her job less seriously, as casual business. Moreover, her habit of staying late at school also disturbed her social life and image in the community. This situation made her a psychological patient, and sometimes her colleagues made fun of her and her state of mind.

One day Ms. Farah received intimation from the DEO's office, that she has been nominated for a training course. For this training she went to Karachi, where AKU-IED trainers briefed the participants about the schedule and contents of the training course. The environment in AKU was so friendly and conducive. Ms. Farah took the liberty to ask anything and everything about the issues she was facing in her school. This training covered almost the all topics related to the management of the school and made a huge impact in how Ms. Farah was able to run her school when she returned.

After attending training course, Ms. Farah came back to her school and called a meeting of her teaching staff. She briefed them about the training contents and salient features of the course. Her colleagues were not expecting any big change in her management style and skills as a result of the AKU training course. But Ms. Farah had decided to implement the management techniques she had learned.

First of all, she said, she asked her colleagues to prepare professional profiles and submit them to her office, stating clearly the submission deadline. By the time they submitted their profiles, Ms. Farah had prepared lists of tasks and assignments. She also read the professional profiles, and shortlisted her colleagues by their expertise and skills in different areas and subjects. Then on the basis their experience and expertise, Ms. Farah distributed tasks and responsibilities among her staff members.

For example, she made "Teacher A" and her team responsible for the preparation of monthly timetables for teachers. "Teacher B" and her team was responsible for managing the computer lab, and "Teacher C" and team was responsible for planning, execution and preparing results of internal examinations.

Ms. Farah said that this task was followed by a weekly progress and planning review meeting with all staff members. She said that this is one technique of HR management which she applied in her school. As a result, the entire environment of the school has changed. Now every staff member has a task and has no time for negative activities or grouping. Ms. Farah said that her school has now been recognized as a model school of District Pishin, and this is just because of the ED-LINKS training course.

GOVERNANCE REFORM AND MANAGEMENT STORIES

Story 9. A female head teacher benefits from financial management training

Samina has been a head teacher at a girls' high school in Mohmand Agency since 2004, where students in her village of Subban Khurd have scored 100 percent on the secondary board examination for the last three years. She says she has been able to improve the environment at her school after taking an ED-LINKS course on financial training, which enabled to better control school finances.

Samina, who is from a Malik family, said, "Since I am the daughter of the soil, I don't compromise with unrealistic demands from the Maliks, and I will exert more pressure on any Malik in order to not have them apply pressure on me."

Samina doesn't compromise around issues of discipline in her school, whether she is dealing with students, teachers and staff. That's why her school is a model school, which never closed even during the crisis in Mohammad Agency in 2008-2009. Samina reported her school's enrollment reached 1,200, a leap from just 400 in 2004.

She attended two ED-LINKS programs, the Leadership and Management course and the EMIS course, and has been to other local trainings organized by the FATA directorate. Samina said she learned new techniques from the ED-LINKS programs, like how to handle a crisis and solve problems using conflict resolution. But in a way, the training in financial management has the most impact. Now she knows how to keep her financial records straight, and is less dependent on office clerks.

The knowledge has given her most confidence. Samina now insists on proper documentation of fines, which created more money for the school, and that budgets should be properly utilized.

Evaluator's observation: In Fata, everyone we talked to who attended financial management courses (i.e., 11 head teachers) said they were finally out of the clutches of office staff.

In Pakistan, school office clerks are typically very forceful and powerful. Typically head teachers are not familiar with the financial rules, and they don't want to get into financial trouble. So office clerks become very influential within the school, and they normally misguide the head teachers. When head teachers run into problems, the financial clerk gets him or her out of the problem. In that way they become more influential.

School fines are a big source of income. Fines are levied for offenses such as coming late to school, absences, indiscipline, damage to school property, not being in uniform, and fights between students, which is normal. Fines can range from 5 to 100 rupees. The financial officer collects the fines, and the fines are not properly recorded in the books. Financial clerks may also take kickbacks, and accept gratifications for admission, processing papers, and things like that. Once head teachers become head teachers, they are just made to sit at the head table. There is no formal training. ED-LINKS is the first program which "touched" this issue and took the training of head teachers seriously.

What is also important about the financial management training, is learning how to get funds. Because money doesn't come automatically. In Pakistan, you need to make the case for the money you need. Normally, money is given to schools on a quarterly basis, with the year starting in July. If you ask for more money in the first quarter, you usually get it in the second quarter. If you can't spend your money in the first quarter, you won't get it in the second.

Head teachers learned this in the financial management course. Without this knowledge, head teachers are likely to be influenced by the school clerk, who will advise grabbing as much money as possible, instead of asking for a smaller amount of money at the beginning of the school year and requesting more later. Also, head teachers usually don't know about Pakistan's double entry system (i.e., receipts and expenditures in one book, and total receipts and expenditures in another book).

Financial clerks take advantage of that and the head teachers become stressed and lose control over the administration, Schools can then end up with a bad atmosphere. The school standards will go down, teacher absenteeism will increase, student drop out will increase, and all the social problems will increase.

Story 10. The Case Study of Head Master, Sindh

Mr. Khan was head master of government boy's higher Secondary School Kot Mirjan Mohammad, in district Mirpur Khas. He is a senior official of education department Sindh with a pay scale 18. Due to his experience, he is qualified to perform any managerial position at school and district level.

He received training at Agha Khan Institute Karachi in the training program of leadership and management organized by ED-LINKS in school year 2009-10. The training program covers material on improving school management practices, improving the quality of teaching and learning, monitoring and evaluating school performance, managing human and finance resources, improving understanding of government policies, rules and regulations, and developing strategic plan for school improvement.

As a result of the training, Mr. Khan changed his behavior as manager of a higher secondary school where 250 students are studying and 11 teachers were teaching. His job was to manage the school affairs and supervise teachers to ensure their attendance and presence in classroom. Before the training

he performed his role as a traditional supervisor of the teachers. He considered that the head teacher would supervise teachers to ensure their attendance, report quantitative figures to district level management, participate at district level meetings, visit class rooms occasionally to observe teachers were present or not, and handle documentation and external visitors. Considerations such as community participation, student participation, quality teaching, student learning and support to teachers were ignored by the management of schools. He was not providing any support and not trying to improve the school attendance and quality teaching.

The training brought about a change in the routines of the head master. He became more supportive to teachers and students and handled the school's affairs with a different style as illustrated below.

After coming back from training, he conducted a meeting with teachers. The teachers told him that they were facing many challenges and a major problem was students' attendance and regularity. He found that the students were not taking an interest in school. As the school was located in a rural and remote location, there were very few recreational opportunities for students and the community in general.

After reviewing the situation and consulting with teachers, Mr. Khan decided to initiate some activities to pique the interest of students and to improve their participation and attendance. Before the activity, 50% of enrolled students were not attending school regularly and were only coming once a week. In addition, 20% of students did not continue their education because they did not find anything of interest at school.

Mr. Khan arranged for a big television and CD player with a generator to be purchased using the school funds. Previously, these types of initiative were not possible for him, because he did not understand his role in handling school finances. Now he understood that the funds could be used for teaching material except other developmental needs especially building and infrastructure.

He selected some good motivational movies in languages the local students could understand (URDU, HINDI). First he played an Indian movie named *"TARE ZAMEEN PAR"*. The basic theme of the movie is to prove that every person in the world has skills and capabilities; every child can do something special. The main characters of the movie are a teacher, students and parents. The parents think their child is mentally ill and needs special education with slow-learners. Then a teacher realizes the student's potential, and eventually, the same child wins first position in school.

The children of government higher Secondary School Mir Jan Mohammad -which is 85 kilometers from the city and in a remote part of the province- watched the movie and found it interesting. Then the head master personally sat and talked with all children and explained the potential that each child has. It was a motivational session with the kids. After this exercise, teachers of the school also took a keen interest in the students. Parents were contacted and asked to send their children to school regularly. The head master arranged these types of movies and sessions twice in a week in classrooms and sometimes in a larger hall. Due to these efforts, student attendance improved from 50% to 90% in two months. There was also new enrollment in schools. The school environment improved due to other efforts. The major role in all these changes was played by Mr. Khan (head master) being a strong manager and mentor. The school had good momentum was set in the school for teaching and education. It has continued for 4 months.

Then, Mr. Khan was transferred and posted as District Education Officer elementary section in Mirpur Khas. The transfer was made as a routine posting and transfer, and it is usual in Sindh to nominate persons in his pay scale to managerial positions at the district level. Nominated personnel are sometimes very glad to get the new position, but others do not welcome the change of job, especially because consistency in efforts toward improving education requires the stay of one official in one position for a substantial time period.

Mr. Khan is trying to implement the same, new ideas in primary schools. Here, his role is different as he is managing 2308 schools and 4413 teachers. He can only visit 40 schools in a week. He spends 80% of his time handling issues like court cases, complaints, documentation, official communications, and meetings at district and provincial levels. He does not have time to go into the field and visit schools for mentoring and support. He has a field staff of school supervisors (45 supervising 50 schools each supervisor) and 11 Assistant District Officers Education (monitoring 100 schools of each). But they did not all get ED-LINKS training and they are (in 90% of cases) picked by the department with some political influence. Normally, the political persons at the district level (MPAs, MNAs, local party leaders) have a great deal of influence in government offices. These political persons are very much involved in the hiring of teachers, transfer, posting and promotion of education officials.

Mr. Khan thinks it is very difficult to implement all aspects of his training in a situation where there is so much political involvement. Major issues are political influence, the uncertain situation and irrelevant and incompetent selection of teachers for training. The teachers sometimes ask these political leaders to be selected for trainings where there are many travel allowances and other benefits. He thinks that the teachers are not well motivated to attend school regularly. And if somebody asks them, they use influence through political channels like members of provincial assembly (MPAs), teachers associations, members of national assembly (MNAs) and local landlords.

He recommends that the selection of teachers for training should be on a merit basis after analyzing their skills and knowledge. Second, the person who receives training by any organization like ED-LINKS should continue his job at least to complete one academic year, so that the training could be implemented and monitored for sustainability.

Story 11. Pedagogical Change: ED-LINKS changed teachers' "master-slave" mentality toward students

The principal of the female Government College for Elementary Training (GCET) said she believed ED-LINKS training resulted in 80 percent of the teachers trained at her college to change their teaching practice.

Staff from both GCET colleges (male and female) participated in an ED-LINKS-led workshop, conducted a needs assessment, and prepared a training guide for teachers. The principal described participating in a needs assessment as an innovative approach in FATA, where NGOs usually come with pre-prepared material and ask staff and teachers "to please do like this." As a consequence of the needs assessment and the resulting "more realistic" material, teachers were more receptive to making changes, the principal said. A total of 227 teachers (113 female and 114 male) were trained during five-day workshops, and the principal estimated that the vast majority of teachers at her college changed their practice.

"Before the workshop, teachers only gave lectures," the principal said. "The teachers felt like, 'I am the one full of knowledge,' like a master-and-slave attitude. The students are slaves and can't ask any questions. But after this training, the teachers understood that teaching should be a child-centered approach, and teaching is a two-way process. It was a major change."

Story 12. The importance of context: Tribal conflict impacts modern education management practices

Hundreds of tribal communities live in the interior Sindh district where Asghar has worked as a DO since 2008. Students and parents belong to tribal communities, as do teachers, meaning Asghar spends a lot of his time as DO responding to and managing educational issues related to tribal and ethnic

conflicts. Additionally, some tribes are friendly to education, and others are not, Asghar said. Therefore he needs to take a different approach to schools, teachers and communities depending on the circumstances.

"When the tribals are in conflict, they require separate schools for their children," said Asghar, adding many middle and secondary schools may have around four to six tribes represented in the community. "Because we want those communities to get closer through means of education, we help them identify their needs, their personalities, and Inshallah, in the future they may get closer and such conflicts may be eliminated. We are the local mediators."

Tribal issues particularly impact the managing of female teachers, said Asghar, who helps oversee 124 high schools. It is more difficult to send female teachers across tribal lines to teach, to act as Master Trainers, or to attend workshops. It can also be difficult to find teachers, especially female teachers, for schools in "hostile" territory even when data shows there is sufficient enrollment to request a teacher.

"When tribal conflicts are in progress, and in the spring, no one dares to pass through without some communication – 'Who he is, and why is he going'," Asghar said, adding family *enmities* can also play a role. "If the road is passing through a different tribal community, then teachers feel difficulty to move."

Story 13. A female head teacher in FATA confronts Malik over management of school employees

Rana is a head teacher in Maranshah, North Waziristan, who was posted to a new girls' school in 2009. The local Malik had donated his house for the school. At first, Rana would call the Malik for consultation and advice regarding every school-based activity, such as inaugurating a program. In return, she received a lot of initial support from the Malik.

But when the budget of the school was approved and lower-level school positions were created, the Malik wanted to get his people hired. Initially Rana resisted, but she had no real choice in the end. So she offered jobs to the Malik's people. Initially the Malik's people worked out very well. Rana was maintaining a lot of discipline in the school. But after a couple of years, the Malik's people started getting slack in their work, and their attitude wasn't cooperative.

Rana discussed the matter with the Malik many times. His people would come to do the work for a little bit, but then they'd again go and do the Malik's work. After the last summer vacation, they stopped coming completely. So Rana discussed the matter with the Malik again, and the Malik told her, "They have other work to do."

So Rana decided to stop their salaries, and that generated a rift between her and the Malik. Finally, the Malik called to get her transferred to another school which was in very bad shape.

But Rana is not discouraged. Currently she's focusing on improving the new school, which is in the village of Kotkulasher, in the region of Andaz FR Bannu, about 400 km from Peshawar. She is leading renovation work and making the school attractive. Her view is that she was fascinated by the ED-LINKS leadership training. She learned that a successful manager has to try all possible options and never withdraw.

She said, "I tried all the options, but since those options weren't working. So I took a legitimate stand and stopped the salaries."

If you meet Rana, who has a son attending a university and is from an educated family in FATA, you will find she is very soft and nice. Her husband supports her work, and traveled with her to the new school site. But she says, "I am a tough administrator. That I learned from ED-LINKS."

Story 14. Using EMIS to request more female teachers: Putting ED-LINKS interventions to work

Waheed, an EDO in the Islamabad Capital Territory (ICT) since 2008, said having access to school data for his sector has been extremely useful. He can now view a school's enrollment, what teachers are teaching, teachers' addresses, the exam results for each school, and the GPA for each school. What he would like now is to learn how to feed data into the EMIS system, and train his principals to use computers.

ED-LINKS trained his computer teachers to do data entry as part of the Annual School Census. But Waheed thinks decision-makers, such as he himself, need to be trained on data entry techniques. At the ED-LINKS trainings he attended (Education Leadership and Management training and EMIS training) there was no hands-on use of computers, Waheed said. Nonetheless, Wahid said he has used his newly acquired access to data to see that science teachers and female teachers were disproportionately assigned to Islamabad, a more desirable urban area than the semi-rural area where he is located. On the basis of the data, Waheed compiled a 47-page report and made a presentation three weeks ago in which he formally requested five additional female teachers.

Waheed thinks computer skills and data networks should be improved and could greatly aid education managers and principals.

"Before, we wasted a lot of time sending a letter 60 miles. Even the principals (in my sector) don't know if they have 400 or 500 students – what is the exact number. Most principals don't know anything about computers. Very few principals and head teachers have PCs."

Appendix 13: EVALUATION & STATISTICAL REVIEW

This evaluation and statistical review section summarizes and describes the information provided about the databases ED-LINKS used to support the statistical findings in its 2011 Impact Study. This review process is important in order to evaluate the statistical claims made by ED-LINKS. Overall, as ED-LINKS acknowledge, the data are not complete. Partial information was available for the treatment group data, and none for the control groups. Therefore, the raw data to reproduce the statistical results for either the treatment or control groups could not be verified using standard statistics.

In addition, a general modeling framework was designed as part of this verification process. The framework provides estimates as to what the outcomes could look like if complete data were made available. The framework was completed to the point allowed by the content of the study. It shows that other outcome data can be measured, beyond what was provided in the study. This includes the impact of interventions across groups and locations as well as at the individual, class, school, and district level. This disaggregated approach is based on econometric techniques used to supplement or enhance practical and statistical significance, direction or magnitude of findings reported when using other quantitative (i.e., analysis of variance or descriptive statistics) or qualitative (i.e., surveys or focus groups) evaluation procedures.

A. Data Assessments

Assessment of ED-LINKS datasets

The purpose of the data assessment and analysis undertaken under this task was to support the pressing research questions put forward by the research team:

What have been the greatest improvements /success in teacher quality training, student performance, and governance as a result of the ED-LINKS project?

This question focuses on ED-LINKS impact on student achievement and teacher performance. In the hopes of further establishing the positive impacts of the program demonstrated by the AIR Impact study conducted in 2011, student and teacher data was requested by JBS' evaluation. The data provided by the ED-LINKS implementation partners were assessed and analyzed for usability in the evaluation. The data analysis team employed two methods in assessing the data:

1) Data reliability and validity checks
2) Investigating possible triangulation options by linking ED-LINKS and external data sources

The data assessment and analysis showed that (1)there is limited data on student achievement (only AIR impact study had student achievement data) (2) there is limited disaggregated data (most of the data is at the region or district level) and (3) linking ED-LINKS data sources requires some manipulation of inconsistent education management information system (EMIS) codes.

Summary of data sources

The JBS evaluation team received a total of 15 Excel files and one Access database. The data included samples used for the AIR impact study (four files) and a monitoring and evaluation Access database that contained 30 tables. The full list of data files received and brief descriptions on these files can be found in ***Appendix 13-C***. Some general observations of the data received were:

- Unit of analysis. Most of the data received were aggregated at the district or province level; especially data reported in most of the baseline reports (e.g., Sindh Baseline Technical Report.pdf , Balochistan Baseline Technical Report.pdf) and national statistics. The program 'output' data (e.g. math kits, science labs, supplemental data) and ED-Links Updated Baseline and head count database (ED-Links Updated Baseline and head count data 28 Sep 09.mdb) disaggregate by school and teacher. The only disaggregated data obtained at the student level is the student performance data collected by AIR for the impact study. The ED-LINKS baseline database would have been a stronger tool if student performance baseline data has been included. Disaggregation greatly aids in data analysis as it allows for much needed sub-group analysis.
- Data Relationships. Difficulty of linking data sources significantly waters down the richness of the data analysis. As previously mentioned, most data sources cannot be linked to student outcomes or teacher performance because the data does not exist, ID codes are not consistent or data collection periods vary. Links to student performance are missing because of aggregation (in the case of national statistics, baseline data) and simply missing links in the case of the EMIS database. Links can be established between the various tables in the ED-LINKS access database with some manipulations of the merging variables. For example, the EMIS codes had to be used in combination with school gender and location variables to establish an accurate matching rate among ED-LINKS Link dataset. If the EMIS code was used in a standardized fashion, linkages would have been easier to establish.
- Outcomes. In terms of outcomes, the AIR impact datasets measure student and teacher performance. The data on the supplemental programs such as math kits, science kits, etc. also provide valuable outcome data on teachers perceptions and usage of the smaller program components (e.g. kits, labs) materials before and after their training (although self-reported). Data on the EMIS is focused heavily on inputs ("Number of working computers").
- Accompanying reports: Most of the data received had an accompanying evaluation reports. These reports gave detailed analysis of the data collected and therefore data paired with its own study (e.g. math and science kits, computer lab, etc.) did not warrant further investigation.

Data assessments for selected data sources

As previously mentioned, not all data sources provided warranted data assessments. The data sources closely assessed were the ones that at first glance could provide some insight into student and teacher performance at baseline. The focus was therefore on data that potentially had baseline information or student achievement and teacher performance. To this end, two

data sets were assessed further: (1) the M&E Access database and (2) Impact dataset from the AIR impact study.

(1) ED-LINKS Baseline M&E Database (ED-Links Updated Baseline and head count data 28 Sep 09.mdb)
The Access database has data for over 5000 teachers and over 1200 schools contained in about 30 tables primarily on ED-LINKS intervention schools.
Reliability (can data be measured repeatedly, with precision, by different people): The database provides detailed data on teachers and schools at one point in time: 2008. The use of the database to collect longitudinal data for a number of years has therefore not been proven. Currently, there are over 30 tables in this database and it is difficult to tell the purpose of all the tables. Although most of the EMIS codes may match across tables, the school names are not uniform. If the database is condensed and only the data deemed necessary is collected, then the reliability of the database can be improved upon and the database can be effectively reused for yearly updates.

Validity (does the data measure what they are intended to measure): The number of tables indicates that the purposes of the database were numerous. It is difficult to determine if all the tables combined were intended to measure particular indicators. However, the data lends itself to informative queries (e.g. number of math teachers trained) that may be beneficial for quick assessments of the program. This advantage could be fully utilized if the database had longitudinal data so that one could look at trends.

Timeliness (how often, how recent, enough to support management decisions?): This data was collected in 2009 and was not updated since then. As a baseline resource, it is useful for school level and teacher level data (if linkages can be formed). During the life of the project, the database could have been modified to include more recent data.

Completeness (is data appropriately inclusive): A few of the 30 tables have significant missing data for select variables. Thus, one would question the usability or need to have so many tables in one database. This database included substantial data on all 4 provinces of interest: FATA, ICT, Balochistan and Sindh.

Precision (data has sufficient detail): Most of the data contained in the database is disaggregated by male and female schools or teachers. It has sufficient detail.

(2) ED-LINKS Impact Evaluation data (student achievement data in English, math, science and teacher performance data)
The student performance data contained student achievement data (proficiency scores) for 8th grade. The data did not include any other demographic data on student aside from gender.
The teacher performance data contained teacher quality indicators (TQI) (21 items on a four-point scale) made up of 15 items on classroom Instruction and 6 items on classroom management.
Reliability (can data be measured repeatedly, with precision, by different people): According to AIR, protocols for data collection were pilot-tested and data collectors were successfully trained and provided with manuals. Procedure followed indicates that data can be repeatedly collected in different schools.

Validity (does the data measure what they are intended to measure): The student and teacher questionnaires were tested for construct validity and fared well. The means of the proficiency scores show proportional distributions.

Timeliness (how often, how recent, enough to support management decisions?): Baseline data was missing in this analysis and data only includes post- survey results. A mid-term evaluation using the same evaluation parameters would have served to strengthen causality between the intervention and outcome.

Completeness (is data appropriately inclusive): Data only included 8th graders as opposed to other grades who would also have been affected by the intervention. No baseline to offer a true impact evaluation. Of the data that is actually collected, there is minimal missing data and those missing data have been properly coded.

Precision (data has sufficient detail): The data has only gender (and school data) as a demographic characteristic for both students and teachers. Gender is understandable very important and a focus of the research questions. However, other variables that would have established the matching process between treatment and comparison schools could have been included. For instance, for teachers, years of teaching experience or the length of training (which was collected in the M&E database) could have been added to provide more depth to the analysis.

Examining baseline data for comparison schools

The purpose of the data assessment was to evaluate data sources for possible analysis into the effects of the program on student and teacher performance. The AIR impact study found positive impacts of the program in all three areas- math, English and science; with students in ED-LINKS intervention schools scoring as an average of 9.7 percentage points higher than their counterparts in non-ED-LINKS schools.[1] In an effort to reinforce the success of the matching methods used in the impact evaluation study, exhaustive attempts were made to link non-ED-LINKS schools (comparison schools) used in the AIR impact evaluation to other datasets , namely the M&E Access database. Establishing such a link would also enable an investigation into the characteristics of both intervention and nonintervention schools at the baseline. However, detailed information (data aside from location and school gender) on these comparison schools were absent from the data sets received.

[1] ED-LINKS, "ED-LINKS 2011 Impact Study: Effects of Intervention on Student and Teacher Performance," p. 165. A description of the methodology can be found on pp. 165-171. Hereafter cited as "Impact Study 2011."

B. General Modeling Framework

This modeling framework shows an alternative method for measuring the impact of the ED-LINKS program, using econometric techniques. Basically, this framework shows it would be possible to measure the impact of the program at student, classroom, and school levels, if access to data was available. This would have enabled estimates of all factors contributing to the impact, such as student background, classroom size, and school location, to be considered. The formulas below represent specifications used to capture characteristics (i.e., student age, gender, socio-economic background, number of teachers in school, etc.) about the different factors involved in this intervention, which can be used to run regressions to estimate impacts (i.e., magnitude, direction, and significance).

A data classification system would allow the impact evaluation to move beyond the current restrictive one factor homogeneous returns framework -, the impact to a given treatment level *j* is the same across individuals; that is,

$$T_{ji} = T_j \text{ for all individuals } i. \quad (1)$$

In other words, if P_i denotes ED-LINKS ***participation*** of the i^{th} student, then the situation can take two possible values, namely P_i = 1 if the students participates in ED-LINKS and P_i = 0 if he or she does not. If the i^{th} student does not participate, then the level of treatment is T_{0i}, which stands for student *i*'s treatment level T when P = 0, therefore, if a student participates in at least the first treatment then T_{1i}. The impact due to ED-LINKS is $T_{1i} - T_{0i}$. The human capital gain for the i^{th} child who participates (P =1) is then

$$G_i = T_{1i} - T_{0i} \mid P_i = 1. \quad (2)$$

(Note: | stands for "given that" or "conditional on" and is used to make it clear that the calculation is the gain for a student who actually participated). Based on this framework, if one wants to know the average gain, this is simply the mean of all the G's, which gives the mean gain of the sample at the school level among all those who participated in ED-LINKS. As long as this mean is calculated correctly, it will provide an unbiased estimate of the true mean gain. The latter is the "expected utility value" of G, and it can be written as

$$G = E(T_{1i} - T_{0i} \mid P_i = 1). \quad (3)$$

In evaluation literature there are similar specifications like $E(T_{1i} - T_{0i} \mid P_i = 1)$ that are classified as the "treatment effect" or the "average treatment effect on the treated", however, in the ED-LINKS case a subset of this of G is considered the measurement of either teachers quality index or the students test scores based on gender, location and the locations estimated social-economic status. When applying a more rigorous line of reasoning to the findings in the ED-LINKS impact study, it becomes obvious that the study results cannot be used to measure the contributions to, but rather the **difference** in mean test scores or quality indexes between participants in ED-LINKS programs and those in non-ED-LINKS programs. This is the sample estimate of

$$D = E(T_{1i} \mid P = 1) - E(T_{0i} \mid P = 0). \quad (4)$$

The obvious link between D and G, can be written as $D = G + B$. This term "B" is bias which as previously stated arises from multiple internal validity threats and three other factors observed in the ED-LINKS study. First, there are cases of ***omitted variables,*** which occur when data that affect outcomes are not accounted for. In this study some obvious variables are school and class size, student age, district definition, population, boundaries, other testing result sources, and prior teacher or student performance intelligence. Due to the study's statistical results and limited individual level data availability, the second factor, ***aggregation,*** which is the evidence of high reliance on group results to imply individual gains, reintroduces bias**.** Furthermore, the study's use of aggregate descriptive statistics combined with the use of default effect size measurements, and the high standard deviations reported throughout the results section of the study also contribute to this factor. In addition, the lack of empirical data intelligence such as data dictionaries, indexes, relationship models to duplicate statistical results further compounds bias. The third and final factor worth mentioning is ***selection,*** which challenges the restrictive selection of certain information over other correlation sensitive options. For example, the selection of 8th graders without using their former years of education would constitute selection bias. The study also relies heavily on internal testing mechanisms, hired and trained observers, unrestricted, monitored or audited data filtering which all could cause spurious results.

Based on the possible scope of bias, an estimate of term "B" is given by

$$B = E(T_{0i} \mid P_i = 1) - E(T_{0i} \mid P_i = 0). \quad (5)$$

In other words, the bias is the expected difference in outcomes without ED-LINKS between participants who did in fact participate at one or more levels in the program and those who did not at any level or less than the total levels offered. This bias could be corrected if $E(T_{0i} \mid P_i = 1)$ were known, but it is not possible to even get a sample estimate of that due to missing data. To originally eliminate this bias; the best approach would be to assign the program randomly which was not possible based on the study. In the event it was possible, then participants and nonparticipants will have the same expected schooling in the absence of the program, that is, $E(T_{0i} \mid P_i = 1) = E(T_{0i} \mid P_i = 0)$. The schooling of nonparticipating families will then correctly reveal the counterfactual, that is, the schooling that would have been observed for participants had they not had access to the ED-LINKS program.

Another concern raised from the review of the study is that there is no allowance for all the other determinants of test scores or teacher quality index. Using **schooling** from the students' perspective as a focal point for example, a regression of years of schooling on a set of control variables as well as whether or not the student participated in ED-LINKS would be executed. For the i^{th} student in the sample let

$$S_i = a + bPT_i + cX_i + \varepsilon_i . \quad (6)$$

Here *a*, *b*, and *c* are parameters; X stands for the control variables, such as age of the child, mother's and father's education, the size and demographic composition of the household, classroom size, and school characteristics; and ε is a residual that includes other determinants

of schooling and measurement errors. The estimated value of b gives you the impact of ED-LINKS treatment on schooling. Note that if the family of the i^{th} student participates in ED-LINKS, then P = 1 and so its schooling will be

$$a + bT_i + cX_i + \varepsilon_i.$$

If student does not participate, then P = 0 and so schooling will be

$$a + cX_i + \varepsilon_i.$$

The difference between the two is the gain in schooling due to the program, which is just *b*.

A study that uses data classification system would allow adding control variables and one could run a regression with and without them. When it is run without them, the results show that the estimated value of *b* is not significantly different from zero (using the standard t-test given by the statistical package e.g. STATA). These results look very similar to the results test-score level in the ED-LINKS study, taking the difference in means between participants and nonparticipants test scores—suggesting that ED-LINKS is not having any reportable impact at the classroom or school level. However, when introducing appropriate classroom or school level control variables in the regression, the result would provide coefficients on ED-LINKS impact at the classroom, school and student level in addition to test-score level. The calculation could show that by providing two (2) or more ED-LINKS interventions at the classroom and school levels increased students' test scores 1% to 2% across subjects per student receiving one corresponding student level intervention. This level of details and reporting would provide more cost-effective direction on how to expand or modify the ED-LINKS program resources.

Even with the addition of P and X control variables the ED-LINKS impact study results does not allow the impact of the program to vary with X; the impact is the same for everyone – homogenous, which does not seem very likely. ED-LINKS impact study mentions benefits to students and teachers based on a different set of interventions. Therefore, another benefit of including a data classification system is the ability to move from homogenous return reporting to a multiple factor heterogeneous model. In other words, allow the gains to vary with X, let mean schooling of non-ED-LINKS $a_0 + c_0X_i$ while that of participants is $a_1 + c_1X_i$ so the observed level of schooling is

$$S_i = (a_1 + c_1X_i + \varepsilon_{1i})P_i + (a_0 + c_0X_i + \varepsilon_{0i})(1 - P_i) \qquad (7)$$

where ε_0 and ε_1 are random errors, each with means of zero and uncorrelated with X. To estimate this model, it is necessary to add an extra term for the interaction effects between program participation and observed characteristics to the regression already run. Thus the augmented regression is

$$S_i = a_0 + (a_1 - a_0)P_i + c_0X_i + (c_1 - c_0)P_iX_i + \varepsilon_i \qquad (8)$$

where $\varepsilon_i = \varepsilon_{1i}P_i + \varepsilon_{0i}(1 - P_i)$ then $(a_1 - a_0) + (c_1 - c_0)X$ is the mean program impact at any given value of X. If the mean X in the sample of participants is used, then it will give the mean gain from the program at the appropriate level.

In using ordinary least squares (OLS) in a statistical package, there is a prevailing concern that the OLS estimates of the parameters will be biased even in large samples unless the right-hand-side variables are exogenous. Erogeneity means that the right-hand-side variables are determined independently so they are uncorrelated with the error term in the regression. Focusing again of the schooling from the students' perspective because the schools participation in the program was purposively targeted, ED-LINKS's participation is not exogenous. This can affect the calculation of the program's impact as follows: The equation for years of schooling is

$$S_i = a + bPT_i + cX_i + \varepsilon_i. \quad (9)$$

The value of $a + bT_i + cX_i + \varepsilon_i$ was used as the estimate of the i^{th} individual's schooling when participating in ED-LINKS, while $a + cX_i + \varepsilon_i$ was used to estimate schooling without participation. Thus the difference, *b*, is the gain from the program. However, in making this calculation the implicit assumption is that ε_i was the same either way. In other words, the assumption was that ε_i was independent of *P*, which would affect the calculation of the program's impact. This highlights the bias due to nonrandom program placement, which may also be affecting the estimate based on the regression model. This does not, however, diminish the improve results using econometrics techniques over other methods. To further clarify one can use an explicit equation for P, namely, $P_i = d + e\,Z_i + v_i$ where Z is several variables that include all the observed "treatment eligible proxies" used for ED-LINKS targeting. There will also be some purely random error term that influences participation; these are proxies that are not in the data, and there will also have been mistakes in selecting participants that end up in this v term. This equation is linear, yet *P* can only take two possible values, 0 and 1. Predicted values between zero and one are acceptable, but a linear model cannot rule out the possibility of negative predicted values, or values over one. There are nonlinear models that can deal with this problem; however, it will be easiest to confine attention to linear models. There is a special case (called "selection on observables" in the evaluation literature) in which the above OLS regression of S on P and X will give an unbiased estimate of b. That is when X includes all the variables in Z that also influence outcome, and the error term v is uncorrelated with the error term ε. The importance of this observation is there are at least two problems to be aware of. First, the above method breaks down if there are no unobserved determinants of participation; in other words if the error term v has zero variance, and all of the determinants of participation also affect schooling. Then there is no independent variation in program participation to allow one to identify its impact on outcomes; it is possible to predict P perfectly from X, and so the regression will not estimate. This problem is unlikely to arise often, given that there are almost always unobserved determinants of program placement. The second problem is more common and more worrying in this case. The error term ε in the regression probably contains variables that are not found in the available data but might well influence participation in the program, that is, they might be correlated with the error term in the participation equation. If that is the case then $E(\varepsilon|X, P) \neq 0$, and ordinary regression methods will still be biased when regressions are estimated. Thus the key issue is the extent of the correlation between the error term in the equation for participation and that in the equation for outcomes. This method is less restrictive than those needed to justify the current version of the impact study based on comparing ED-LINKS participants with non-ED-LINKS participants with similar values of X. Both rest on believing that these unobservables are not

jointly influencing schooling and program participation, conditional on X. Intuitively, one might think that careful matching reduces the bias, but that is not necessarily so. Matching eliminates part of the bias in the first naïve estimate of ED-LINKS's impact. That leaves the bias due to any troublesome unobservable. However, these two sources of bias could be offsetting—one positive, the other negative. Heckman and others (1998) [141] make this point. One cannot know on a priori grounds how much better off one is with even a well-chosen comparison group, which is an empirical question.

Assuming separate additive between observables and unobservable, the student test score results can now be written

$$R_i^J = m_j(S_i) + u_i^j \quad (10)$$

with $E[R_i^j \mid S_i] = m_j(S_i)$, i.e. assuming that the observable S are unrelated to the unobservable u. It will be necessary to maintain these exogeneity assumptions on the Ss throughout. Let the state-specific unobservable components be written as $u_i^j = \alpha_i + \varepsilon_i + b_{ji}$ for j = 0, 1,…,J with α_i representing some unobservable individual trait, such as ability or motivation, that affects scores for any given level of schools, b_{ji} measuring the individual-specific unobserved marginal return to schooling level j relative to level 0 in terms of the particular definition of test score result R_i. For convenience, b_{0i} will be normalized to 0 and ε_i will be the standard residual, possibly capturing measurement error in previous or current scoring. Given previous partial specifications, the general specification for observed test score results becomes

$$\begin{aligned} R_i^J &= m_0(X_i) + \sum_{j=1}^{J}(m_j(X_i) - m_0(X_i))S_{ji} + \sum_{j=1}^{J}(u_i^j - u_i^0)S_{ji} + \alpha_i + \varepsilon_i \\ &= m_0(X_i) + \sum_{j=1}^{J} b_j(X_i)S_{ji} + \sum_{j=1}^{J} b_{ji}S_{ji} + \alpha_i + \varepsilon_i \\ &= m_0(X_i) + \sum_{j=1}^{J} \beta_{ji}S_{ji} + \alpha_i + \varepsilon_i \end{aligned} \quad (11)$$

With $\beta_{ji} = b_j(X_i) + b_{ji}$

In this specification, βji, the personal return to schooling level j (relative to schooling level 0), is allowed to be heterogeneous across individuals in both observable and unobservable dimensions; $b_j(X_i)$ represents the return for individuals with characteristics X_i and thus captures observable heterogeneity in returns; while b_{ji} represents the individual-specific unobserved return to schooling level j, conditional on X_i. Based on various local factor, one can assume the α_i and b_{ji} to have a finite population mean (denoted by α_0 and b_{j0} respectively) and variance.

With this specification (11) in place, one can review data dictionaries, data codebooks as well as data patterns and broaden the specification with characteristics of students, teachers, classrooms, schools, districts or countries. In addition, the specification allows analysis of differences between the homogeneous and heterogeneous models and within these models look at differences between single treatment and multiple treatments. Similar specification can be constructed for Professional Development interventions including in-service training, lesson planning, assessment skills, content knowledge, pedagogical skills in subject matter, computer education, and teaching aids. We write the exhaustive set of P+1 treatments under

[141] See Heckman, Lalonde, and Smith (1999), and Abadie, Angrist, and Imbens (1998) for discussion on quartile treatment effects.

examination as 0,1,…,P and denote the quality index by teacher *n* of treatment level *o* as his or her highest level by P_{no}=1. This specification is very flexible also and can cover outcomes that occur within a fixed time series – including completion of o treatments of intervention by individual n.

C. Data Catalogue

Data (file name)	Description
ED-LINKS M&E Database (ED-Links Updated Baseline and head count data 28 Sep 09.mdb)	Data on teachers and schools data contained in about 30 tables. Data includes information on 5000 teachers trained and 1200 intervention schools. Data was last updated Sep 28,2009
2011 Balochistan Student Impact Evaluation data (Balochistan Student data Final_June4.xls)	Student achievement data on 1537 students. File contains student proficiency score on a 1-4 scale and basic demographic data (gender). Data was collected in April 2011.
2011 Sindh Student Impact Evaluation data Sindh_Student_data_June 6.xls)	Student achievement data on 2640 students. Data has student proficiency score on a 1-4 scale and basic demographic data (gender). Data was collected in February 2011
2011 Balochistan Teacher Impact Evaluation data (Balochistan TQI (teacher) data May 31.xls)	Data on 242 teachers. Contains teacher quality indicators (TQI) 21 items on a four-point scale. 15 - Classroom Instruction and 6 - Classroom Management items. Data was collected in April 2011.
2011 Sindh Teacher Evaluation data (Sindh_TQI_(teacher) data_June 6.xls)	Data on 330 teachers. Data contains teacher quality indicators (TQI) 21 items on a four-point scale. 15 - Classroom Instruction and 6 - Classroom Management items. Data was collected in February 2011
2011 English Impact Evaluation data (EN08y11_keyed.sav)	Student English achievement scores expressed as total percent correct on 33 test items.
2011 Math Impact Evaluation data (MA08y11_keyed.sav)	Student math achievement scores expressed as total percent correct on 33 test items.
2011 Science Impact Evaluation data (SC08y11_keyed.sav)	Student science achievement scores expressed as total percent correct on 33 test items.

Data (file name)	Description
2011 Teacher Impact Evaluation data (TQ08y11_keyed.sav)	Teacher performance measurement (TQI) expressed as total percent scores on 21 items.
Kits & Lab data (Science & math kits data (Sindh, Balochistan&FATA).xls)	Teacher questionnaire data on 127 math and 139 science kits. Teacher perceptions on the use of kits (how often; students reception of kit, use in instruction, etc.). Data is from Sindh, Balochistan and FATA. It also has some basic demographic data on teachers. Data collection period was from February-May 2011
2011 Computer lab survey data (Computer Lab data (20.6.2011).xls)	Teacher questionnaire data solicited from 62 Teachers on the use of IT equipment, IT skills training sessions, and computer lab orientation, changes in the classroom, sharing with other teachers. Data is from Balochistan and Sindh. Data was collected from April-May 2011.
2011 Science lad survey data (Science Lab Enhancement data (21.6.2011).xls)	Teacher questionnaire data from 37 teachers on the status of science lab and use of science lab in teaching and learning. Data was collected from Balochistan and Sindh in 2011.
Teacher Agreement Partnership data (TAP Evaluation Data.xlsx)	Data on 69 Teacher questionnaires. List of participants for initial follow-up workshop of Teacher agreement partnership in all 4 regions Data includes basic demographics, internet use contact with TAP participants, changes in the classroom and sharing skills with teachers in the school . Data was collected in February 2011 and July 2011
Master Teacher data List of 359 ED-LINKS (MTs for Core Program.xls)	Data on 359 Master teachers Master Trainers / Resource Persons trained through ED-LINKS Includes basic demographic data, subject taught.
2011 Supplemental data (Supplemental Material data.xls)	Teacher questionnaire data on 280 Teachers from Sindh and Balochistan. Includes information on usage of supplemental materials index (based on 4 questionnaire items) . Data collection was in April 2011

Data (file name)	Description
2011 Student Exchange Program data (SEP data set 2011.xlsx)	Data from 32 SEP students on computer usage Data collection occurred between March-May 2010
National Education Information System(NEMIS) data (District - Baseline 2008.xlsx)	Data on 136 Districts. File has district data on demographics, hardware, computer, data security, power, etc.2008
NEMIS data (Province - Baseline 2208.xlsx)	Data on 8 provinces. Includes data on demographics, hardware, computer, data security, power,etc.2008
NEMIS data (NEMIS Survey Report 2011 - Data Set.xls)	Data on 22 District officer/ Computer operator Data security, backup, validation, internet, etc. for Balochistan and Sindh2011

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Appendix 14: Evaluation Data

[See Data Catalogue, Appendix 13, above, for all ED-LINKS data files reviewed during this evaluation]

Student Data

ED-LINKS: Student Questionnaire					
Respondent	**District**	**Grade**	**Q1**: Have you seen any change in your teacher's teaching style in the last year or two?	**Q2**: Have you ever used a computer or science lab? If so, what did you learn?	**Q3**: Have you been in a Science Club? If so, what did you learn in it?
R1	JaffarAbad	10	Yes, now our teachers come into the class with full preparation. They teach us as if they are doing some presentation. Now our teachers behave with us like a friend and they even don't physically punish us. Now our teacher always encourages us on asking questions, previously teachers used to snub us. Another very important change which has occurred in the teaching style of our teachers is that she ensures the revision of each lesson. Teacher also teaches us in small a group which is very useful method and we learn through this method very quickly.	NO. There isn't any computer teachers in our school that why we cannot use computer lab.	We did some experiments in 9th class but there isn't any activity happened after it regarding science club.
R2	Pishin	9	Yes, I have observed a big change in teaching methodology of my teacher. Before training he was very much like a dictator but after ED-LINKS training his attitude was changed and now he is like a friend of students. He always encourages us on asking questions, when I was in 7th class it we were not allowed to ask too many questions. We share our problems with our teacher and always support us in this respect.	Yes, we have a daily class of computer and we have learnt the following skills. - Use of internet, Skype call - MS Word, Excel, PowerPoint	Yes, I was active member of the science club and still we are running that club but in an informal way. I learned the research work on different topics/subject, for example, we conducted a research on "role of plants in creation of healthy environment". We shared the results of researches with other students for the benefit of students and society as a whole.
R3	Pishin	9	There was no computer lab in our school but now we have a computer lab which is very interesting and useful. Now our teacher teaches us with more attention, it was not the practice when we were in class 7th in the same school. At that time teachers used to read the lesson only. Now teachers involve us in the process and allow us to ask as many questions we can. Now teachers also tell us a lot about the things which are not part of our books.	Yes, on every Tuesday we use computer lab, in these days as our exams are near we are using science lab as well. We have lent many programs in computer lab i.e. - Use of internet, power point, - MS Word, Excel	Our science club is not very active so far; however we have learnt to prepare Models of different things. We have also learnt to prepare thing with useless material.

R4	NawabShah	10	Yes, our teachers are more cooperative and friendly now. They do involve students in class room.	Computer lab is available and students use it less frequently. However the science lab is nonfunctional as the number of students in 9th and 10th grade is 300 and teachers are not able to conduct practical work in the lab.	I am not much clear about it.
R5	NawabShah	10	Basically, I participated in the exchange program and it was a good experience for me. Generally besides this exchange program, a change has been observed in our teachers' teaching methods. They are not focusing on the rote memory and now they are asking more activities in classroom. The teachers made the class room more active rather than just lecturing. The teachers now try to make us understand concepts. This helps students keep these concepts in their minds forever.	I use computer lab as science lab is not functional in school due to the unavailability of science teachers. I personally learnt how to operate computer, searching and browsing, email, MS Word and Excel.	There is a science club in school, but there is no activity has been carried out in this club as no science teacher in school and lab is also not functional.
R6	Loralai	10	Now teachers have become so good, they make it ensured that all students have understood the lesson. Previously teachers only used to read and make us write in note book but now they discuss with us. When I was in class 7th teachers used to taking assessment on monthly basis but now we have to give test on weekly basis.	Yes, but load shedding is a problem, computers are not charged properly and we cannot use them. (It was a mobile lab furnished with laptops). We attend computer class on weekly basis but if there is intense load shedding we have to miss the class. Till now we have learnt Microsoft Excel, Word, word Pad, internet usage and PowerPoint.	Yes I am member of science club where I have learnt about functions of brain, and weight. We also have conducted many experiments of physics which were so interesting
R7	Loralai	9	Now teachers are so confident and now they teach us in a very good manner. There was no computer lab in our school but now we have a computer lab which is very interesting thing. Now our teachers teach us with more attention, it was not the practice when we were in class 7th in the same school. Now teachers involve us and they ask us to work in a group which is very interesting.	Never, today they have opened the computer lab otherwise it remains closed; you can sees computer are still packed. Teachers say that due to load shedding computer lab cannot be utilized.	She could only tell that our teacher now teaches us through different models Q3: (She said yes I am an active member of the club but her answer could not prove that.)

Respond-ent	**Q4**: Is your classroom a more interesting place to be than it was a few years ago? Why?	**Q5**: Do you feel any difference in your school after ED-LINKS and do you feel your school is more friendly when compared to the private schools in the district?	**Interviewer Notes**
Student 1	My classroom has now become more friendly and attractive place for us. It is because now teachers pay full attention to all students. Learning in groups is also a very exciting exercise which has converted our school into very attractive place in world.	Both schools are good, Students performance depends upon students and not on schools. If a student works hard she will get the fruit. However in Public School teachers are more qualified than the private sector schools.	Student was from *Name of School*

Student 2	My classroom has now become more friendly and attractive place for students and it is because of my teacher who trained us in making the classroom beautiful place and we did that with no/low cost models.	For me, it is a better place than any private school. This is because of the following three major things. 1- No private school has computer lab but it is in my school; 2- My teachers are like my friends and they always encourage us in asking questions; 3- My school, through ED-LINKS sent me to USA on exposure tour which changed my thinking process. Now I am like a celebrity in the town and other schools call me on their functions to address.	Boy
Student 3	My classroom has now become more friendly and attractive place for me. Now I enjoy learning and sitting in class room. I want to spend more time in school now.	My school is a better place than any private school. It is because we have so many teachers as compared to the private schools. Our teachers are also more qualified than that of private school. Private Schools are selfish; they are just to make money. In our school I believe if a child has firm belief on herself and she wants to acquire education school doesn't matter.	Girl
Student 4	It is changing now as teachers are involving us now during lectures	Our school is now more comfortable and friendly than private school and I prefer this school rather than private schools as it is attractive in education and other activities.	Student Exchange Program, *Name of School*
Student 5	Yes, generally, it is now more attractive as the charts and other colorful material and activities carried out by teacher.	No response	Student Exchange Program, Name of School
Student 6	Now my classroom has now become more friendly and interesting place as compare to tow years back. Two years back teachers used to write on the black board and rest they leave to students whereas now they work hard and involve us in learning process. In past teachers used to tell us but now they ask so many questions to us and emphasize that we should speak more.	Quality of school is dependent upon the quality of teachers and our school has best teachers. There are less qualified teachers in private school	Boy; Q2: (The best room in this school is dedicated for computer lab while rest of the rooms are in devastating condition i.e. walls were about to fall, roof were damaged)
Student 7	Now my classroom has now become more friendly and attractive place for me. Now teachers have become friendly with us, they don't punish us now	Our School is also a good school but I always have feelings that private schools are more friendly and interesting than my school. I want to be admitted in private school but we cannot afford private school. Children in private school are dressed in colorful uniform. We have computers but don't have a computer teacher that is the main reason that we cannot learn computer courses practically.	Girl *Name of School* Q2: (She was right computers were still packed with original plastic sheets which indicates that they have never been used)

ED-LINKS: Student Roundtable (Group Responses)				
Respondent Group	**District**	**# of students in group**	**Q1**: Have you seen any change in your teacher's teaching style in the last year or two?	**Q2**: Have you ever used a computer or science lab? If so, what did you learn?

Student G1	Shikar Pur	3	Yes, previously it was not like that, now school environment is friendlier and teachers are more cooperative and give respect to the students as well.	Yes we frequently use computer lab and we learnt searching of documents, emailing and word programs. Science lab is also available and we use it but not more frequently
Student G2	Sukkur	3	Yes, participation is encouraged now. There is more group work, chart work, and more low cost stationery available. The teacher interacts more with students. This has created a friendlier environment and student attendance has improved. But in last four months, our teacher is transferred so there is no activity in our school.	Yes we used to work in these labs until our teacher was present but not now. So the senior student who got training is teaching in school for computer, but due to the large number of students, it is difficult to train all the students. *Name* is teaching IT voluntarily to kids in the school. They have 12 laptops (provided by ED-LINKS). She is basically teaching MS Office. Computer classes are held in groups of 35 where 3 people share a laptop for half an hour each. Load-shedding, however, limits the usage of computers in school.

Respondent Group	**Q3**: Have you been in a Science Club? If so, what did you learn in it?	**Q4**: Is your classroom a more interesting place to be than it was a few years ago? Why?	**Q5**: Do you feel any difference in your school after ED-LINKS and do you feel your school is more friendly when compared to the private schools in the district?	**Interviewer Notes**
Student G1	No this facility we do not know and there is no science club in our schools	Yes there is a big change and it looks more attractive due to the change in teachers' behavior	Private schools do not have such facilities like science lab and computer lab and their fee is also high. We enjoy all the facilities free and we feel better than private schools	3 males; different schools
Student G2	Yes, I (One student out of three) was part of science club and we used to discuss different practical work, we learnt how the functions of computer, micro scope and frog experiments	Yes it became more interesting and interactive in last two years but now due to unavailability of teachers (6 teachers in school of 600 students) it is same as before these years. The changes brought by ED-LINKS included group work, chart work, and introduction of low cost/no cost material. This increased student interest and created a friendlier environment. This then positively affected student attendance.	After the program, student participation is encouraged in school. Initially, there used to be a gap between students and teacher – this has decreased after the program. Students have also become more conscious - if teachers are not teaching them well, they actually go to the head teacher to complain about the teacher. Private schools are much better than our school because there are more teachers available in these schools, teachers give more time to students, and the environment is much friendlier. For this reason, the upper class opts for kids to go to private school.)	3 females; from *Name of School*

7 individuals and 6 in groups: Total student participants = 13

Teacher Data

ED-LINKS: Teacher Individual Questionnaire								
Teacher Respondent	**District**	**# of years teaching**	**ED-LINKS program**	**Q1**: My experience as a participant in ED-LINKS' training helped me in my classroom teaching (1= strongly disagree, 5= strongly agree)	**Q2**: My experience as a participant in ED-LINKS training helped me develop better relationships with my students (1= strongly disagree, 5= strongly agree)	**Q3**: My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional. (1= strongly disagree, 5= strongly agree)	**Q4**: I still use knowledge or tools in my classroom that I received during my ED-LINKS training. (1= never, 5=more than once a week)	**Q5**: Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training. (1= strongly disagree, 5= strongly agree)
TR1	Mohmand Agency, Peshawar	16	2009	5	4	5	5	4
TR2	Peshawar	18	2009	5	5	5	2	5
TR3	Mohmand Agency, Peshawar	17	2009	4	5	4	5	3
TR4	Peshawar	16	2007	5	5	5	2	4
TR5	Peshawar	6	2007	4	4	4	2	3
TR6	Khyber Agency, Peshawar	29	2009	2	3	3	2	4
TR7	Bajoor Agency, Peshawar	34	2011 April	5	5	5	5	3
TR8	Peshawar	12		5	5	4	5	4
TR9	Peshawar	14		5	5	4	4	4
TR10	Jamrod Khyber Peshawar	8	27-12-2010	5	4	4	4	5
TR11	Mohmand Agency, Peshawar	19	2007	5	4	4	4	2
TR12	Peshawar	16		5	4	4	5	4
TR13	Peshawar	16	2009	5	4	4	4	3
TR14	Peshawar	16	don't remember	5	4	3	5	4

TR15	Mohmand Agency, Peshawar	5	2009-2010	4	5	4	5	4
TR16	Awaran	19	2010	5	5	4	4	4
TR17	Loralai	5	2010	5	5	5	5	5
TR18	Loralai	9	2009	5	4	5	4	5
TR19	Loralai	21	2009	3	3	3	2	3
TR20	Shikarpur	24	Math Training 2009 to 2011	4	3	2	3	4
TR21	Shikarpur	19	Math Training 2009	4	3	4	4	2
TR22	Sanghar	32	English Training 2009-2011	5	4	5	5	5
TR23	Sanghar	28	English Training 2009	4	5	5	5	4
TR24	Mir Pur Khas	38	Math Training 2009	5	5	4	4	4
TR25	Mir Pur Khas	18	English 2009	4	4	4	5	2
TR26	Mir Pur Khas	34	English 2009	5	5	4	2	2
TR27	Mir Pur Khas	25	2009 Science	2	4	3	2	2
TR28	Awaran	?	?	N.R.	N.R.	N.R.	N.R.	N.R.

	Open-ended Questions (Q6-Q9)			
Teacher Respondent	**Q6**: What did you learn, if anything, as a result of ED-LINKS training that was most useful in your teaching?	**Q7**: Was there anything you particularly liked about the ED-LINKS training? What was it? Why?	**Q8:** How, if at all, has your experience in ED-LINKS training changed you as a teacher?	**Q9**: What would you recommend to make the ED-LINKS training more effective and useful to teachers in the future?

TR1	ED LINK should continue this program. ED LINK uses all good methods in learning which improve my way of teaching.	The best thing in this training was activity based learning and soft attitude of facilitators.	Training polish my aptitude to learn and skills, I observe the big change in my class room environment due to change in my teaching style now I use participatory methods in my class. Children learn more and more in this way.	These programs should be arranged at Agency level not district level because people from far flung areas have too much problem to reach in District Head Quarter. Psychological aspect were less deal with in this training. Teachers don't know much about the psyche of children, so it is necessary to give proper and focused training including social psychological aspects.
TR2	The activity based teaching methodology of ED-LINKS was very good which involved teachers and students as well. The lesson understanding and active participation of trainer and trainees was useful to explore some innovative methods of delivery.	The style of trainer was so impressive that I learn how to react normally when tensed during class room environment. The interactive and participative method of trainer provide new paradigm of understanding different phenomenon at the same time in teaching practice.	I tried to change my teaching practice and observe lot of mistakes that I previously made during my teaching, and managing. The participatory learning, whatever we learnt from trainer was useful to teach the students in a lucrative way which was very much productive and has too good impact, personally on me and indirectly on my students.	Mathematics need very urgent and focused treatment which should be repeated regularly over a period of time. The teacher that has left over should be included next time.
TR3	The most valuable in this training that it change my concepts about learning. I learn some new techniques of teaching which I have never experienced in my teaching life.	Newness in training was very good, as I haven't attended such useful training in the past	It was really fantastic experience, it reinforce my teaching capacity.	To have a greater impact on teaching the duration of this training should be more. The repetition of teachers should be stop every next time, so that new lot of teachers can learn and overcome their lacking.
TR4	Training was good, other elements like arrangement etc. were also very good. I learn that when teacher, community and student made a triangle with their participation it formed an ideal school environment to learn. ED-LINKS fill the gap to complete this triangle. And the English training and module were used properly, manual for community participation push us to work for school through the involvement of community.	I learnt how to get involved Community participation, and financial problem resolution through community was very affective technique for fund raising via school committee and proper utilization of resources in different situations.	The training has a bombastic impact on my teaching style; I learn how to fully involve the students in learning through interactive way of communication during class room environment.	Overall the training was good, but trainer was too fast and focused on covering the contents, time was too short to learn, so it is recommended that training should be focused and activity based with necessary time.

TR5	I have learn a lot from English training, I also learn how to create a linkage and harmony among different subject, and how to use AV-AIDS in different subject.	Merit followed in abroad tours was very good. It is recommended that this tour should be repeated after a period of time. Teachers should be changed in training and tours. More students should be give opportunity to visit different countries.	I modify my way of communication and over come anger which dishearten the students in class room environment and they avoid sitting in the class. But now it is better after my self catharsis.	New trainers should be introduced every time and new plans, activities, subjects should be included in every time. It will create a competition among teachers and students to learn.
TR6	Some of the things were useful in this training that it was facilitated on professional and practical lines. Now when someone use these methods on child in a proper way it may help to learn better.	Training was normal I have already attend such trainings and all the facilitator use same methods with little bit change.	We know about many and many new things in my professional career but all were from my personal creativity and less was learnt from facilitators. Men always learn from life and personal experiences.	Training duration should be at least two weeks and daily time should be reduced. Arts and supports subjects should be included in the training.
TR7	The training of science and math were very useful.	Training was focused, and was given on professional style and methods. Attitude of trainer was friendly.	I realized that all of my past methods and patterns were stereotyped and old fashioned. So now I am using the new methods whatever has been learnt from this training.	Training would be subject based and topics based. The most important topics Psycho social and students supports/ physical health topic should also be the part of this training next time.
TR8	I learn how to operate in limited resource and how limited resources be utilized at their best within controlled setting of the schools. The available resources were being utilized but not properly for maximum productivity. So I learn how to manage in bad and worst situation while facing financial and managerial crisis.	I learn that teacher should behave like a facilitator and disturbance handler in the class; this is the duty of teacher to put their students at ease before delivering lecture. I also learn that teacher should not stuff every thing into the minds of learners, rather to teach through some joyful and impressive way which leaves a strong leaning impact on the minds of students. I learn how to use library and dictionary and also practicing these learning on my students.	I have amended my teaching style 100 % because I learn new ways of transforming and sharing knowledge new techniques in teaching methodology even it can brought the students into the corridor of international competition when they thought about foreign tours.	Social studies, Pak studies, Islamyat and other general subjects should also be included in the teaching contents by ED LINK, because their major focus was only science subjects.
TR9	ED LINK teaches us the proper utilization of funds, time management, and resource mobilization and interaction and contacts with the community for the betterment of school	I learn Junior and senior relation management, and how to improve and uplift the school environment with the help of teacher, students and local community	Competition in the environment created after ED LINK training among schools was very constructive, it lessen the gap between teachers and students, ED LINK training also create interest into math and science	Along with Science the Arts topic should be include, study tours, summer camps and interactive session among students for better learning should also be conducted by ED-LINKS.

TR10	ED LINK transform overt and very good teaching norms, especially teachers students relationship and their behavior in school formed an ideal setting in every environment. ED LINK managed this training at its best.	Discipline in training was very much ideal. Trainer gives too much respect to the trainees which shows its transformation towards students through teachers.	ED-LINKS give me back my lost knowledge, as I recall all of my old memories to concentrate on new knowledge. They share the knowledge which can be easily practiced into the schools. Even when I practice this produce very good results.	Trainees should be changed every time. The duration of training should be less in hours in each day and it should increased in total numbers of days. Training should planned in the relevant area in small clusters and all the teachers of every single school should attend this training in one slot. The surprised visits should be paid to all the trainees to check out the feedback and evaluation of the implication of teaching treatment whatever has been learnt by the trainees.
TR11	It help me to develop my professional skills and to build relationship with community, whatever is community roll in school betterment should be understand and utilized to improve the education system.	ED LINK's gives a drastic change in my Leadership qualities. Now I am working for the improvement of my school system by utilizing this.	I figure out that, how to give activity learning which has improve the confidence level of the children and it has produced better results as compare to last year.	Training should meet the changing requirements of syllabus. Training contents also should be as per the ground realities and scenario of FATA. Activity based learning
TR12	After this training first time I considered myself as facilitator instead of a Head teacher or boss to other teachers. the friendly attitude with the students and selection of friendly monitors in the class rooms was good. So I think as a result I became more proactive rather than reactive with school environment. Training also constructs my understanding that how to avoid in different problematic situation I also learn that Head teachers should be facilitator and a leader rather than a boss.	The trainers were so good and impressive, their style, delivery, way of communication every thing was up to the international standards.	To some extent it draws a deep shadow on teachers psyche and their communication and way of delivering lecture, so it also influence my previous stereotyped teaching style.	Psychological aspect were less addressed, teachers don't have a command on the new contents, so it is necessary to give proper and focused training, which teachers can easily understand and transform to the students, psycho-social aspects of students leaning should be included in the training so that teacher can apprehend the psyche of the students and handle them as per situation.
TR13	Training about science was given the examples of excrement from daily routine life activities, which was very good and easy to learn and to be learnt to the students.	ED LINK's training style and knowledge sharing techniques were very good.	I observe a lot of change in my teaching after the treatment of ED-LINKS training	After that good training, nobody from ED-LINKS visits the school to check about the problems whatever is facing during teaching. No one check and ensure the proper implantation of training treatment.

TR14	ED LINK should arrange training in each school in grouped form, as per subject. The implementation of training contents in not easy in FATA which is also tough to practice in this environment.	Group based learning was very useful but I haven't use this practice so far due to school environment.	ED-LINKS training has changed my understanding and behavior towards my teaching. Other things are less applicable in this setting.	If cluster bas and within their own cultural group, like the person from sawat should be trained in SAWAT rather than Peshawar. And female trainees should be called from same cultural setting so that their stay during training can be facilitated. Training should be more emphasized on activities rather than lectures.
TR15	No response	Every thing was up to the mark like a professional training.	Training draws a good impact on the psyche of teachers, now I always let my students to question and brainstorm.	The follow up of training should be took at a given time as there is no feedback system in this training. I have some other problems after attending this but no body is in the loop to resolve my reservations.
TR16	The method of teaching especially how to teach in groups was very helpful, in addition the use of charts during teaching was very good	Group discussion method was very good Competition among childrenMethod of marking	In past I used enter in class room with anger on my face but now I enter in my class with smiling face.	There was no Follow-up of trainings it should be made part of project
TR17	Method of Lesson Planning was very useful. We prepared 50,000 lesson plans which was very big achievement. We also learned the how a teacher should behave with his students. In past teacher was like an emperor and students were like slaves but in this training we learned that students are also human beings and we should respect their views	The thing which I liked most was method of group discussion, in this method students are asked to discuss topics in a group. This technique empowers students and makes them more expressive. Class room management techniques were also very useful.	My teaching style has been totally changed; in past I was all in all in the class but now I also give importance to my students. In past I used to punish my students but now I have become their friend. My teaching style has been converted to student center from teacher centered.	RPs should be selected on merit Monitoring and follow-up mechanism should be made integral part of projects. (there was no follow-up mechanism after training) EDOs should not interfere in the selection of teachers
TR18	I participated in ED-LINKS training in 2009; it was very interesting and useful training. We are given teaching aids which were very interesting and students liked them. I learnt so many things but development of teaching aids though no cost low cost material was very useful. This activity has increased participation of student in classroom activities. We have developed so many teaching aids. I use these aids in my teaching by which teaching and learning has become more interesting.	I learned participatory method of teaching, before ED-LINKS training my focus of teaching was on rot learning but in theses trainings we were told that student's participation in learning process is very essential. I make student participate in lessons by dividing them into groups. This also has decreased level of my efforts and I can save my energy because now don't have to speak all the time.	Now I have become more friendly with my students. In past I used to be active while make my student passive. Now most of the time my student remain active and I stay passive	Duration of training should not be more than a week, teachers who attended 10 days training could not complete their syllabus.

TR19	Participatory teaching technique was very useful technique. In past we used to read lesson but now we ask student and ensure their participation in learning process. Our area is very backward and this method also increases confidence in children.	The method of assessment of learning of students was very useful and interesting. I use this method in which students test is taken in a group of 8 students. In this method each student is given different questionnaire which compels children to work hard. This method has also reduced the practice of cheating in exams	Before training I used to punish children but now I never punish them. Now I have become friend of my students. I have told all students that I am your friend which has increased their involvement in teaching and learning process.	I would recommend that Master Trainers should be selected from the same subject. I noticed that 5% Master trainers were not of the same subject i.e. English teacher was selected as a Master trainer for science subject
TR20	I have a Masters in Education and yet the ED-links training program taught me many things. The newer methods I learned encouraged student participation and involvement. Before, children were afraid to write on the blackboard and now they are not afraid and even take initiative. The biggest reason behind this is that the children are not afraid of me anymore.	No response	The program made a huge difference in my teaching style. Originally, I was a very strict teacher and was even disciplined by head master on being so strict. After receiving the training from ED-LINKS, I am much friendlier, do not use the stick, and have learned new ways to get children's attention. In addition, now I also take input from the students. Initially, my method of teaching was to assign book reading/memorization to kids. Now, I explain what is provided in the book.	Future trainings can be made more fruitful by including primary school teachers in training, shortening training sessions held by each individual, and avoiding problems caused by load-shedding in future in future trainings.
TR21	Group work, presentation and Lesson planning	Our presentations during training	Now I can handle number of students easily and with friendly methods, Confidence building	Follow up and sustained effort
TR22	Speak English with student so that they can get better idea about language	Interactive especially back bencher/slow learners were asked to participate	More interactive	Continuity of training and follow up
TR23	No response	No response	No response	No response
TR24	No response	No response	No response	No response
TR25	No response	No response	No	No response

TR26	The ED-LINKS program did help a lot I gained a lot of knowledge. Group work is the most useful part of my teaching.	Group Work	No actually, there are 150 children to deal, so it is very difficult to entertain all the children with this method	Administration Issues should be resolve to get fruits of the training as teachers are busy in other issues like transfer and posting with high volume of children
TR27	Nothing special as I was thinking that the training was just like a formality not considering our administrative issue	Group work was the only thing I think can help us to reduce pressure of bigger strength of students we have in schools	I tried hard to implement, but due to the school environment I could not make any change	They should work to reduce the political influence in education sector and to increase teacher's attendance besides such trainings
TR28	No response	No response	No response	No response

ED-LINKS: Teacher Roundtable Questionnaire: Open Ended Questions only				**Open-ended Questions (Q6-Q9)**	
Teacher Group	**District**	**Number of people in group**	**ED-LINKS program participated**	**Q6**: What did you learn, if anything, as a result of ED-LINKS training that was most useful in your teaching?	**Q7**: Was there anything you particularly liked about the ED-LINKS training? What was it? Why?

TG1	Awaran	14	Teacher Training Program	Training was very useful and we learned so many new things i.e. Teaching in small groups and group discussion (2 responses); Teaching with the help of charts and use low cost material (3 responses); Lesson planning (2 responses); Teachers were of the view that they could not implement this training in the classroom. Except one, they all thirteen (13) teachers were of the view that they could not implement this training in classrooms; On probing following four reasons found of not implementing training in classroom. 1)- Selection of teachers was not carried out on merit. In most of cases it was done without consultation of the Head Teacher of the school. (10 responses). In the result, Head Teachers did not allow us to teach new things in our teaching. (13 responses). One of them said that once he tried to teach his students by new method but his Head Teacher stopped him. 2)- Teachers selected for the training was of non relevant qualification and subject i.e. teacher *Name* was a Drawing Teacher and trained on Math. 3) No follow visit to schools was made by any representative of ED-LINKS, RPs and any other department. (13 responses) 4)- Material required for low cost teaching was provided in last month of year 2010 and by that time the project has been wound up. They have also pointed out that science clubs were not formed in any school (14 responses). Computer labs were established in two schools. [One of them has mentioned that seven (7) computers from his school lab were stolen on 4th of December 2011 and now there is no lab in his school.]	The following were good things which we learned through ED-LINKS training. - Teaching through formation of small groups of students (2 responses) - Child friendly teaching technique (6 responses) - Sharing of thoughts and ideas by students in classroom (2 responses)
TG2	JaffarAbad	4	Teacher Training Program	We have learnt so many good things and the following techniques were the most useful in our classroom teaching. - Questioning technique (2 responses)- Classroom management (4 responses)- Working in small groups (4 responses)- Teaching through activities (4 responses)- Role play (1 response)- Lesson planning (3 responses)- Preparation of students profile (2 responses)	Though, overall it was a great opportunity to learn so many new things on effective teaching but the techniques I liked very much are as following. - Classroom management; that was the technique which helped me in effective teaching, especially to a class having big number of students (3 responses). - Teaching in small groups; it was very useful technique that enabled me in effective communication to every individual student of my class (4 responses)

TG3	Loralai	10	Teacher Training Program	No doubt, we have learnt so many good things through ED-LINKS trainings but following were the most useful during our classroom teaching. - Students' discussion and presentation sessions (5 responses). We use this technique in English language classes. (4 responses) - Use of no cost/low cost models in teaching and learning process. By using this technique students learn by practical experiments. (6 responses) - Friendly Teaching attitude was used and that was through maximum involvement of students in teaching and learning process. (7 responses)	We learned the use no/low cost material in classroom teaching and that technique trained us on "how to involve students in the process of learning by a practical work". (5 responses) Use of graphics in teaching of mathematic was very useful method. That was the method which we did not know and apply ever before ED-LINKS training. The graphics method helped us in teaching difficult concepts in a easy way and students also understood easily. (3 responses)
TG4	Pishin	11		Training of science subject was very useful (4 responses).After the training of Science now we can make student understand practical experiments. Training of English teaching was not very comprehensive (3 responses). The words used in training were very difficult and it was hard to understand for us (2 female respondents). ED_LINKS project was very useful for the capacity building of teachers in Science and English. The program was very useful but the planning of the program was not good as the program could not be completed (4 Responses). We were expecting that Computer Labs will also be installed in our schools but it was not happened (6 Responses).	We learned participatory method of teaching, before ED-LINKS training our focus of teaching was on rot learning but in theses trainings were told that student's participation in learning process is very necessary. (5 responses)Oral Method of teaching in English was also very useful method, in this method we ask students to discuss different subjects in pair/groups in English language. (3 Responses)Discussion method was also very good method; in this method of teaching students are engaged in teaching learning process. (2 Responses)
TG5	Shikarpur	8	Trainings in Math, Science, & English& Communication	Content division, Group Work, Student Assessments	Activity Method, Interactive, Objective setting
TG6	Sanghar	5	Trainings in Math, Science, & English	Group Work, Practical examples in Science, Student centered approach	Trainers' behavior and knowledge, Classroom environment, Training logistics arrangement
TG7	Mir Pur Khas	7	Trainings in Math, Science, & English	National Curriculum and Education Policy as a guideline for teaching and education at district, bench Marks, Activity based training, group work, easy way to teach math	Trainer's behavior was very good, interactive way of training

Teacher Group	**Q8:** How, if at all, has your experience in ED-LINKS training changed you as a teacher?	**Q9**: What would you recommend to make the ED-LINKS training more effective and useful to teachers in the future?	**Q10:** You attended an ED-LINKS training. Can you remember a situation that was very confusing?	**Q11**: What happened?
TG1	It was a good experience to attend ED-LINKS training and that has changed our response towards students and now we are more friendly with them (3 responses).	The following recommendations were given by the participants with regard to making ED-LINKS training more effective in future. - Monitoring and follow up which was not seen previously should be considered in future - Selection of teachers should be made through recommendation of Head Teachers - Continuity of project should be kept on priority - Balochi language should be taken as a separate subject - In majority cases, the schools have no classrooms or bad condition which should be constructed	When we were informed by the ED-LINKS office about our training in Agha Khan University we did not know details of the training	We started journey to AKU Karachi without having any information of training topic, duration of training and even address of the University. That was the situation which put us in a very depressive mode.
TG2	ED-LINKS trainings made me a teacher who can now teach students with more confidence and preparation. (3 responses) We learned that" teacher her/himself should also be a good student" which mean, a teacher should have a good knowledge and command over the topic. Furthermore, he/she should have a well set plan of activities to keep students involved in the process of teaching and learning. (3 responses)	To make trainings more effective the following things should be considered while designing such programs in future. - Continuity of training programs, at least twice in a year- English grammar should be give more attention in training of teachers- Follow up and monitoring of training in classroom should be focused as previously it was missing.- Selection of Teachers should be made on merit and qualification based, as in some cases, non subject teachers were nominated for training of English subject (2 responses)	In this regard we did not face any such problem or confusion and things were very clear and understandable. One thing which they (female Teachers) highlighted was regarding in-accessibility of the training venue for female staff.	My training venue was about 40 Kilometers away from my hometown/school and there was no public transport available on that route. My husband was used to provide me transportation throughout the training but some time, due to his business he could not provide me that facility, then I could not attend the session for those days. That situation made me upset as I missed some important topics of the training.

TG3	For us, ED-LINKS training was a good experience which changed our behavior towards students and now we are considering our students like friend. Our relationship with students has totally changed and now they feel free to ask questions. (5 responses)	There are so many things that we want to suggest you for making such trainings more effective and useful, for example. - Ensure ownership of Government department in every step of the program, starting from designing of training to implementation. There was no follow-up by Education Mangers (3 responses) - Follow up and refreshers of trainings should be made part of the training program. (4 responses) - Duration of training was short for some participants. Duration of training sessions should be planned by considering capacity and capability of the participants. (4 responses)	Yes, there was a situation that made me confused while attending the training session.	Senior and junior teachers by their grade and qualification were participating in the same training, which, at so many occasions, made the things (terminologies, words) difficult for juniors to follow and understand, whereas being a senior teacher; I felt just wastage of time. That situation was also difficult for trainers to handle in a sophisticated manner.
TG4	Before ED-LINKS training I would be active and students always would remain passive whereas after the training now students are more active than me (3 responses)Now I give individual attention to all students I have become more friendly and now I don't punish students at all (4 responses)	Most of the teachers have completed education though Urdu Medium method therefore only one week training is not enough for us. It should be given I n different steps (2 female respondents). Few sessions in the training were so heavy for me that I could not understand even a single word. SLOs were in English and for me it was very difficult to understand the.We were asked to learn pronunciation through Oxford dictionary, I bought dictionary but it was so difficult for me to understand the method of Symbols for pronunciation.All teachers should be trained instead of some selective teachers (5 responses)About 4 to 5 teachers in each training are included because of political interference it should not be practiced (6 responses).	I attended training in Karachi there was a session on Low Cost No Cost teaching Aids. During the session we came to know that the required material was not available. It was very confusing situation for me.	Training team arranged material from Karachi but I believe that it should have been arranged prior to the training.
TG5	Changed generally, but specifically difficult to explain as number of students are too much to teach exactly with activity based teaching	Duration of training should be lesser, More focus on class room follow up, consistency in trainings, selection of teachers should be on merit	Training timing was very odd, we were sitting in training hall till evening, I was late and reached at my rural village very late with hard efforts and sources of transportation	No response
TG6	Behavior change, little change in technique	Selection should be more cautious and it should be considering the expertise/back ground education a teacher has, more follow up visits should be conducted	The training was arranged in Ramadan, and we were fasting. It was very tough to sit in the training and follow the instructions.	No response

TG7	Use of new methods, student support rather than punishment	Regular training, School based training and demonstration, Infrastructural support, Sindhi Language for Sindhi teachers	Training was conducted according to the wish of trainers not teachersMany teachers want to attend but could not get the opportunity Training in busy days of teaching	There were many questions and techniques we need to learn but not imparted in the training

Teacher Group	**Q12**: What questions do you have in thinking about that situation? What would you like to know?	**Interviewer Notes**
TG1	In such condition we would like to know that who was actually responsible to provide us the relevant and complete information including background of ED-LINKS project, our role after attending the training, overall training arrangements and like that.	14 males Venue: Circuit house Bella, District Lasbela Q6: (04 out of 13 (about 30%) teachers has attended training which was not relevant to their subject i.e. English teachers attended science training which was neither relevant nor useful to them) Q8: Note: since most of teachers have not been implementing the ED-LINKS training in classroom, so they did not give any response on this matter.
TG2	In that situation some important questions arose in my mind, for example. * Why training venue was selected without considering the better facility of transportation?* Why female staff was not provided the facility of accommodation or pick and drop?	3 female + 1 male : total 4Venue: *Name of* School, Dera Allyar, Jaffarabad
TG3	* Why the selection of teachers was not made by their grades and qualification? * can junior level teachers apply this training in their classroom teaching?	3 Females + 7 Males = 10 Venue: DEO office LORALAI
TG4	How students will produce Low Cost No Cost Teaching Aids Will it be possible for me to use this technique in my class?What other teachers will think about me when I will utilize these Low Cost No Cost Teaching Aids	4 Females + 7 Males = 11
TG5	Why should not they complete this training in time?	4 male, 4 female = 8 participants
TG6	Why should not they arrange trainings in other months?	4 male, 1 female = 5 participants
TG7	They should conduct a Training Need Assessment before designing any training Why not all the teachers should participate?Training should be conducted during vacations to save the time for teaching	4 male, 3 female = 7 participants

ED-LINKS: Teacher Roundtable Questionnaire: Tallied Answers to Likert Score Questions		

Teacher Group	District	Number of people in group	**Q1: My experience as a participant in ED-LINKS' training helped me in my classroom teaching**: Number of 'Strongly Disagree' responses	**Q1:** Number of 'Somewhat Disagree' responses	**Q1:** Number of 'No Opinion' responses	**Q1:** Number of 'Somewhat Agree' responses	**Q1:** Number of 'Strongly Agree' responses	**Q2: My experience as a participant in ED-LINKS training helped me develop better relationships with my students**: Number of 'Strongly Disagree' responses
TG1	Awaran	14	0	0	0	0	14	0
TG2	JaffarAbad	4	0	0	0	0	4	0
TG3	Loralai	10	0	0	0	2	8	0
TG4	Pishin	11	0	0	0	4	7	0

Teacher Group	**Q2:** Number of 'Somewhat Disagree' responses	**Q2:** Number of 'No Opinion' responses	**Q2:** Number of 'Somewhat Agree' responses	**Q2:** Number of 'Strongly Agree' responses	**Q3**: **My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional:** Number of 'Strongly disagree' responses	**Q3:** Number of 'Somewhat Disagree' responses	**Q3:** Number of 'No Opinion' responses	**Q3:** Number of 'Somewhat Agree' responses	**Q3:** Number of 'Strongly Agree' responses
TG1	0	0	5	9	0	0	0	7	7
TG2	0	0	0	4	0	0	0	0	4
TG3	0	0	0	10	0	0	0	3	7
TG4	0	0	5	6	0	0	0	7	4

Teacher Group	**Q4**: **I still use knowledge or tools in my classroom that I received during my ED-LINKS training**: Number of 'Never' responses	**Q4**: Number of 'Very few times' responses	**Q4**: Number of 'Every other week' responses	**Q4**: Number of 'Once a week' responses	**Q4**: Number of 'More than once a week' responses	**Q5: Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training.** Number of 'Strongly Disagree' responses	**Q5:** Number of 'Somewhat Disagree' responses	**Q5:** Number of 'No Opinion' responses	**Q5:** Number of 'Somewhat Agree' responses	**Q5:** Number of 'Strongly Agree' responses
TG1	1	2	0	4	7	2		1	5	6
TG2	0	0	0	0	4	0	0	0	0	4
TG3	0	1	0	3	6	0	0	0	4	6
TG4	0	0	1	7	3	0	1	1	8	1

ED-LINKS: Teacher Round Table Ranking Questions (group answers only)							
Teacher Group	**District**	**Number of people in group**	**Q1**: My experience as a participant in ED-LINKS' training helped me in my classroom teaching (1= strongly disagree, 5= strongly agree)	**Q2**: My experience as a participant in ED-LINKS training helped me develop better relationships with my students (1= strongly disagree, 5= strongly agree)	**Q3**: My experience as a participant in ED-LINKS training helped me feel as though I have more respect and opportunities as an education professional. (1= strongly disagree, 5= strongly agree)	**Q4**: I still use knowledge or tools in my classroom that I received during my ED-LINKS training. (1= never, 5=more than once a week)	**Q5**: Overall, my school has supported new ideas and practices I learned as a part of my ED-LINKS training. (1= strongly disagree, 5= strongly agree)
TG5	Shikarpur	8	4	4	4	4	1
TG6	Sanghar	5	4	5	4	2	2
TG7	Mir Pur Khas	7	4	4	4	3	2

Master Trainer Data

ED-LINKS: Master Trainer Round table Questionnaire- Voted on answers with tallies									
Master Trainer Group	**District**	**Number of people in group**	**Q1:** My experience as a participant in ED-LINKS' master training program helped me learn valuable new skills and knowledge: Number of 'Strongly Disagree' responses	**Q1:** Number of 'Somewhat Disagree' responses	**Q1:** Number of 'No Opinion' responses	**Q1:** Number of 'Somewhat Agree' responses	**Q1:** Number of 'Strongly Agree' responses	**Q2:** This program helped me learn how to deliver professional development programs, including developing teacher training manuals and creating course structure and content: Number of 'Strongly Disagree' responses	**Q2:** Number of 'Somewhat Disagree' responses
MG1	Jaffarabad	4	0	0	0	0	4	0	0
MG3	Quetta	6	0	0	0	1	5	0	0

Master Trainer Group	**Q2:** Number of 'No Opinion' responses	**Q2:** Number of 'Somewhat Agree' responses	**Q2:** Number of 'Strongly Agree' responses	**Q3**: I have been able to mentor teachers I trained**:** Number of 'Strongly disagree' responses	**Q3:** Number of 'Somewhat Disagree' responses	**Q3:** Number of 'No Opinion' responses	**Q3:** Number of 'Somewhat Agree' responses	**Q3:** Number of 'Strongly Agree' responses	**Q4**: As a result of this training, I have offered advice to education officials at the school, district, or provincial level on how to improve teacher training: Number of 'Never' responses
MG1	0	0	4	0	0	0	1	3	0
MG3	0	2	4	0	0	0	0	6	0

Master Trainer Group	**Q4**: Number of 'Very few times' responses	**Q4**: Number of 'Every other week' responses	**Q4**: Number of 'Once a week' responses	**Q4**: Number of 'More than once a week' responses	**Q5**: What did you particularly find valuable, if anything, about your participation in a master teacher training program?	**Q6**: Did you change your opinion about any type of teaching practice or approach as a result of becoming a Master Trainer?
MG1	0	0	1	3	We learned very interesting and useful things in this training. (04 responses) The said training increased level of our confidence even teachers became very confident after ED-LINKS trainings. (03 REPONSES) We learned how to prepare standard based lesson plans (4 responses). Student reflection method technique was also very good technique (3 responses). We have learnt another very useful technique though ED-LINKS training that is group discussion technique. This technique provides students a chance to express themselves. This method increases confidence in students as well. (3 responses) We also learned activity based teaching technique, through this method student involvement in learning process significantly increased. In past we were using 100 years old method of assessment but in this training we came across with a very innovative method of assessment. Now teachers are using this assessment technique which has shown very good result.	Yes, a big changed happened in our approach towards teaching. (all participants). The most important change which occurred was the increase in confidence level. We became negative to positive; it was surprising to me that my behavior to remain under annoyance totally changed and I became a very cheerful person (01 response). The same attitude transformed children and they also remain cheerful and happy during classroom. Now we discuss topics and don't pose any thing on them (03 responses)

MG3	0	0	1	5	In response of this question the following were the views of the participants. - Development of standard based lesson plans (4 responses) - Students reflection method technique (3 responses)- Development of No/low cost material (4 responses)- Student centered teaching method (3 responses)- Motivational tools for teachers and students (4)- Review of modules enabled us to develop activities for student, even without text books. (2)	Yes, a big changed happened in our approach towards teaching. (almost all participants) - Our approach shifted from Rot Learning/teaching to activity based teaching and learning (4 responses)- My attitude shifted from dictator to facilitator (5 responses)- Dependent learner to independent learners ; including learners in teacher learning process (4 responses)

Master Trainer Group	**Q7:** How do you think the ED-LINKS program could have been improved?	**Q8**: 6) You attended an ED-LINKS program. Can you remember a situation that was very confusing?	**Q9:** 7) What happened?	**Q10**: 8) What questions do you have in thinking about that situation? What would you like to know?	**Interviewer Notes**
MG1	Follow-up of these training were very weak, only 9 days follow-up was carried out which was not enough; Management should be involved in the monitoring and follow-up; Selection of teachers should be on merit, in training there were some teachers who were not of the same subject. (*We asked percentage and the following picture emerged)*. In science subject it was the practice in a group of 35 teachers 10 t0 12 (about 30%) teachers used to participate who were not relevant to the subject. However all the four participants were agreed that this was not practice in the trainings of science subject? There was a very lucid example in my school where a teacher who was teaching Math for last 25 years was not selected for this training. There should be more focus on the formation of PLCs (Parent Learning Councils). This will decrease political interference in selection of teachers.	(Interviewer: They couldn't tell such a story despite our many questions and probing)	No response	No Response (They couldn't tell such a story despite our many questions and probing)	Participants: • *Name 1*(Experience as teacher 9 years) Participated in RP training in 2010 • *Name 2*(Experience as teacher 12 years) Participated in RP training in 2009 • *Name 3* (Experience as teacher 25 years) Participated in RP training in 2009 • *Name 4* (Experience as teacher 21 years) Participated in RP training in 2010 Total Participants: 04

MG3	The following points were given by the participants for improvement of ED-LINKS program. - Relevant professionals should be selected and appointed at key positions of ED-LINKS, previously it was not followed (3 responses). - Intensive follow up by Resource Persons should be considered (5 responses) - Database of Resource Persons, Master Trainers and trained teachers should be developed at provincial level, which further can be used in similar type of activities. This will also helpful in avoiding duplication of efforts (2 responses).	At district level, there were three different tiers/departments involved in ED-LINKS but they do not know the role of each other. This situation created confusion in so many times.	"Training material was not delivered to trainers during trainings, especially the material related to low cost material and none of partners has taken this responsibility. (2 respondents) . "In district Pishin we have our office but that facility not was considered by the ED-LINKS and a separate office of ED-LINKS was established. If 50% of resources were provided to PITE office it will produce the same results with more grantee of sustainability of efforts."	We have queries like;- Why ownership of program was not given to government departments?- Why coordination among partners was not given the due consideration?	School/College: *Name*

ED-LINKS: Master Trainer Round table Questionnaire- Group-chosen answers							
Master Trainer Group	**District**	**Number of people in group**	**ED-LINKS program**	**Q1:** My experience as a participant in ED-LINKS' master training program helped me learn valuable new skills and knowledge.	**Q2:** This program helped me learn how to deliver professional development programs, including developing teacher training manuals and creating course structure and content.	**Q3**: I have been able to mentor teachers I trained.	**Q4**: As a result of this training, I have offered advice to education officials at the school, district, or provincial level on how to improve teacher training.
MG2	NawabShah	5	Trainers of Math, Science & English	5	4	2	2
MG4	Sukkur	5	Trainings in Math, Science, & English	5	4	4	2

Master Trainer Group	**Q5**: What did you particularly find valuable, if anything, about your participation in a master teacher training program?	**Q6**: Did you change your opinion about any type of teaching practice or approach as a result of becoming a Master Trainer?	**Q7:** How do you think the ED-LINKS program could have been improved?

MG2	Low/No Cost Material Development, Probing techniques, concepts about science became clearer, How to conduct effective training	Personally we changed ourselves, now we are using more interactive methods during class room teaching, we ask students to leave books and think about the subject of teaching. But for teachers, we made follow up visits of schools, where it is found that 50% teachers changed their techniques and using new techniques	Selection of teachers for training should be done according to their qualifications and teaching experience as 30% teachers were not relevant for training EDLINK should work for administrative issues as well to improve monitoring and follow up of training implementation Teachers should be made accountable and they should report child development on periodic bases Examination/Assessment system should be reviewed and monitored properly and examination boards should be asked to have similar trainings as teachers were receiving Head masters those received management training should at least spend one year in the same position to implement the design as prescribed in the training The training content should be more simple and realistic as teachers are not fully prepared for different terminologies and methods The coordination between interventions and organizations (working in same area) requires more attention
MG4	Interactive, Content knowledge improvement, Pedagogical skills	Yes, it improved teaching practices, and due to which 60% result have been improved. Students got confidence, and now they are more aware about their rights. In one school students went to Head Master with a complaint about irregularity of the teacher	More follow up is needed, More IT training are needed, student teacher rations should be improved, furniture and other infrastructure support, Computer should be accompanied with a professional IT teacher, Math Kits should be given with appropriate training, Marking system should be given more attention `

Master Trainer Group	**Q8**: 6) You attended an ED-LINKS program. Can you remember a situation that was very confusing?	**Q9:** 7) What happened?	**Q10**: 8) What questions do you have in thinking about that situation? What would you like to know?	**Interviewer Notes**
MG2	The general environment of the training hall was not conducive for training at Agha Khan Institute	We were sitting on small children chairs and receiving a loaded training	The logistics should be improved and such trainings should be conducted in a good environment	4 males, 1 female = 5 participants
MG4	Invitation of training was given in shorter time, so we could not prepare ourselves better, Training center was not very attractive for participants	We went in training in hurry with no preparation, and we did not feel comfortable in training hall	It should be informed well in time, and training hall should be more comfortable for learning purposes	4 males, 1 female = 5 participants

Leadership (ELM) Data

ED-LINKS: Leadership and Management						
Leadership Respondent (LR)	**District**	**# of years in education**	**ED-LINKS program**	**Q1:** What was most useful about your training?	**Q2**: Have you applied the learning in your job?	**Q3**: Do you recommend others to undertake training?

LR1	Mir Pur Khas	30	Leadership and Management Training	School Improvement Plans, Methodology of Training, Management principles (We should not create favoritism and we should ask everybody to participate in decision making process), The head masters should support teaching process besides management	Yes, in my school, teachers were worried about the regularity and punctuality of kids. I decided to solve this problem. I arranged an Indian motivational movie "Tare Zameen par" to all children of school. Then I explained the theme of the movie to kids. The theme was that every child has potential, need is to explore that potential. After that day, I used to spend some time with teachers and children to improve attendance. The results were very useful and it created a good environment in school. We used to arrange such type of movies in a week.	Yes, but selection of teachers and head masters for training should be done through a pre-testing system and qualified persons should participate in the training
LR2	Peshawar	18	2009	The training methodology was very unique which leave powerful impact on the trainees. The second thing was professional attitude of trainer which provides serious guideline for the new trainer. The attitude of trainer draws a differential landmark which clarifies between trainer and a teacher. I learn best interactive methods and brainstorming techniques from this training.	Yes, I have applied these learning in its true sprit and form whatever has been learnt. The environment of the training and its application in the field has some difference which can be cover by the support of education department.	Yes, in the training the learning aspects were addressed by the trainers, even arrangement of training was very systematic, trainers were very learned and professional, and they put their best to let the trainees to learn. So as per my point of view the training make over the abilities and polish our old and stereotyped learning.
LR3	Peshawar	19	2007	Training was very useful as it provide the subject focused and new techniques of teaching students and addressing their learning abilities/disabilities to keep them on the track of competition.	To some extent I have applied these learning to my job, because due to rigid environmental and technological forces all of the learning are not possible to apply.	Yes, of course, trainings provide very supportive and fruitful impact on learning's.
LR4	Peshawar	16	N.R.	It has provided the training on our demands which helped a lot. The best thing is that they have given computer to the students and provided proper training to the teachers.	Yes but not that much properly.	Yes, because it is the best way to create close relations between the teachers and the students.

LR5	Pishin	8	2009-2010	Management and School Development program was very useful program and it helped me a lot in understanding Management skills. Another key area of this training was team building and team work. This component helps me in building friendly environment in my office	Yes I selected Name of School and applied all techniques in this school. We also formed Science Club which is very successful.	Yes why not, what I have learnt so late I would like that my colleagues learn those skill in their initial career. We soon forget whatever we learn during our professional education such training harness the abilities of teachers and other administrators.
LR6	Peshawar	8	N.R.	The most useful thing is that it is better to learn something form the most experienced people. Normally such training provides an out of box thinking for trainees and exposure to the students in form of sending students along with teachers to the foreign countries.	Yes I tried my level best to apply what ever I learnt from the training, new methods, joyful learning, brainstorming, interactive sessions, etc. but due to high teacher student ratio it doesn't work in a constructive way.	Yes, training provides fresh thinking and constructive treatment for the teachers. And it can boost the psychological aspects of teaching methodology.
LR7	Peshawar	18	2007	It was the best in the beginning mainly to send the students along with their teachers to foreign countries. It was too practical and interactive approach to be socialized the students and teachers of FATA with the world.	Some of the learning we applied, but due to operational and financial issues in the education system we are not able to fully apply these learning's to our students. But we are trying our best to transform all what has been learnt.	Yes it is very useful for the teachers to learn new teaching techniques and new ways of learning parameters to uplift their student in the arena of international competition of science and technology. So everyone is recommended to attend such trainings after every 2 years.
LR8	Sukkur	N.R.	EMIS user and Leadership and Management Training	We got training on Management and Leadership, where the most useful thing is change in management style, especially in context of quality education and support to the teachers working in field We did not get any training about EMIS but we were given computers and EMIS support	We got training on Leadership and Management which improved our leadership skills, now we are more vigilant and supportive rather than BOSS. We used to visit schools and ask teachers about quality and support they need. Previously we used to go for inspection only. We use in our offices computer more frequently due to the support provided by EDLINK (they gave computers and other facilities).	Yes of course, this management training and equipment support was very good and we improved efficiency of our offices. Therefore, we will recommend this type of training and support for all the designator in education including primary schools

LR9	Pishin	15	Leadership Training program for Head Teacher	Though the whole package of training was good, however the most useful areas were as following: School Management; Effective coordination with staff; Community participation in enhancement of students' performance; Documentation; School Development Plan	Yes, I always make best use of my learning in my daily activities. For example, through school development plan I have arranged the facility of drinking water for my students.	Yes, I strongly recommend that this training should be provided to all managerial staff.

Leadership Respondent	**Q4**: Do you think this training is linked to professional development of teachers and improved student learning?	**Q5**: Did your efficiency as a manager improve? How?	**Q6**: If we plan such trainings in the future, how can we improve them?	**Interviewer Notes**
LR1	Yes, but the follow up mechanism should be implemented and transfer should also be ban after these trainings at least for one year.	Yes, a good relationship with teacher s and students as I explained in question 2	Selection on merit bases, Pre-test should be conducted, training should be arranged at district level rather than at Karachi, therefore, resources can be saved and more participants can be entertained, regular follow and reporting on improvements and feedback	Mr. *Name* was initially a teacher. He said that his students were initially afraid of him. The training encouraged him to teach through newer methods of education. He cited the example of a movie about Education that he made students watch in class and how it impacted his students. He said that one important lesson the ED-LINKS training taught him was that he should treat all students impartially. *Name* said that in many cases teachers were not given training in their subject areas (i.e. English teachers given Math Training). He said that perhaps up to 50% of teachers were given training in a different subject area. However, he said it was understandable as schools usually tend to have more subjects than teachers. He mentioned that some teachers were not able to absorb the training and cited the example of a teacher who received IT training and only remembered to turn a computer on and off. He also said that in the training he received, the venue was improper and congested – this was not the best learning environment. He recommended that when teachers are trained, should be trained according to their subjects. He also recommended that instead of select teachers being trained next time, all secondary school teachers should be trained.
LR2	The learning landmarks set out	Yes, as a manager the training	In future the follow up of this training	Data entry note: This person was also

	by the trainers were highly correlated with professional development of Officers/Officials from education department. So, professionally developed teacher can produce highly effective students regarding exposure of new things in this competitive world.	buff up my life skills, it improve my learning efficiency to look the things from different angle and awake the dormant abilities which can be utilized to transform knowledge into students. Moreover follow up of such training is very much required. ED LINKED has no permanent link and data management with education department.	will extend the learning and cover up whatever has been changed over a period of time. Its is recommended that this should be repeated over every two or three years.	interviewed for the 'EMIS Training' and was EMIS Respondent 2 (ER2)
LR3	Yes it is improved being officer from Govt. department, because we are less focused on learning by doing and transformation of these learning to the students. I have attended some departmental training that were stereotyped and provide no usefulness.	It was enough to train the managers and teacher to improve the system, but even it can be improved with the discussion of Officers/Officials from Education department before conducting such trainings.	It was enough to train the managers and teacher to improve the system, but even it can be improved with the discussion of Officers/Officials from Education department before conducting such trainings.	
LR4	Yes it is closely correlated with professional development of Managers, teachers and administrative persons. Students were sent abroad to have international exposure but was for a less period the duration should be at least for 6th months.	Yes, I have learn how to done work with and through other people in an institution.	I think this is enough to train the teachers.	Mr. *Name* School Teacher Note. They provided the facilities but not properly.

LR5	The training was very much linked with the professional development of teachers but the issue is that we have very short number of teachers. There is shortage of teachers and teachers are forced to teach three subjects which is not justifiable but we are helpless	The training has increased level of motivation and after completion the course I felt a new spirit in me. Now I implement new techniques in organizing my day to day activities	First Training Need Assessment of all cadres should be carried out before the launch of project. Project should not be closed before completion neither funds of such project should be shifted to other project. Separate training sessions should be organized for males and females as female trainees cannot participate complete in training in the presence of males. Whatever promised in the project must be implemented and provided otherwise it creates doubts. In this project it was promised that Computer labs will be provided to 9 schools whereas only one lab was provided	
LR6	Yes it is highly linked with professional development which is directly associated with students learning. As the contents and learning material was very exclusive. It also provides a unique method of professional developments of teachers and I am sure it will improve the students learning if applied in its true spirit and form.	Yes, training has a drastic impact on my efficiency to operate my working area as a manager, and I also learn too many new things from this workshop.	I think it should be improved by changing the trainers, because every trainer has some new way to do the things, some psychological aspects of the trainings should also be include to understand the psycho social issues of students.Personally I appreciate the facilities provided by ED-LINKS like girls hostel repairing and given equipment to the hostel, science kits to the schools, English language lab etc.Note. I got that the mobilization was very strong and the relations within the government was very good.	Note. I got that the mobilization was very strong and the relations within the government was very good
LR7	Yes of course it is.	Yes it is improved, because training leave a strong impact on my previous learning and new way of doing thing as joyful learning, and definitely it has a very useful impact on the learner when applied.	The training and arrangement was very good, subject of the training was focused in a good way so it should be with more emphasis on psychological aspects of the learning and learners, even some ethical aspects ignored, should be included next time. Note: Training Agency (ED- LINK) provided all the facilities in a good way, but some less useful things were given by the facilitators even the space to keep learning material was also an issue.	Note: Training Agency (ED- LINK) provided all the facilities in a good way, but some less useful things were given by the facilitators even the space to keep learning material was also an issue.

Leadership Respondent	**Q4**: Do you think this training is linked to professional development of teachers and improved student learning?	**Q5**: Did your efficiency as a manager improve? How?	**Q6**: If we plan such trainings in the future, how can we improve them?	**Interviewer Notes**
LR8	Yes, 50% teachers are changed; Matriculation result is the evidence of change which improved 60%. Now marking system and paper setting is given more attention where we apply Bloom Taxonomy. And then we ask paper checker to check papers accordingly. This is due to the training, managerial support and facilities provided by ED LINK	We are more efficient now, as we received all IT equipment, Our EMIS system is fully functional, we used to prepare report in a short time, and we had good feedback from teacher community. Off course it is not only due to ED LINK, there are other initiatives from government of Sindh and other donors, however EDLINK played a quite good role in this whole improvement. We are not sure about the exact percentage of role but many components like trainings, and equipment support was game changer.	More IT training should be added in it as it is the most useful part we got in it. There should also some exchange visits within the provinces of Pakistan and even the neighboring countries	Data entry note: Same participant as EMIS Respondent 4 (ER4)
LR9	Yes, this training has contributed a lot in improvement of my professional abilities. For example, before ED-LINKS training, I had no idea of teacher's motivation but after gone through ED-LINKS course I find myself comfortable to guide and motivate my staff, which ultimately enhanced the performance of teaching and learning affairs.	Now I have learnt how to delegate the responsibilities to my other staff which improved overall performance of my school.	For improvement of training project my recommendations would be: - As you know that Head Teacher of High School has the responsibility of Drawing and Disbursement officer (DDO), so he/she should be trained on planning and budgeting. - Topic of School Management Committees should also be included	

ED-LINKS: Leadership and Management- Roundtable					
Leadership Respondent Group (LG)	**District**	**# of people in group**	**Q1:** What was most useful about your training?	**Q2**: Have you applied the learning in your job?	**Q3**: Do you recommend others to undertake training?

LG1	Awaran	4	Training on budgeting and audit Management was very useful (one response) Use of data in management was very useful and it helped me lot in managing my office (02 responses) Sessions on Curriculum School monitoring were very important and useful for me (one response)	Yes I have applied training and got very good results. I worked for the development of different schools among them *Name* Model School is a very good example. (One response) We have also applied school development methods which have very good results. (3 responses)	Yes, I strongly recommend that this training should be provided to all managerial staff. Though this training they can also learn modern techniques of Management and monitoring.
LG2	Jaffarabad	4	There were so many new things that we have learnt in ED-LINKS training and the most useful areas were as following. - Being head of the department always play a supportive role with your subordinate staff; - Never give up and try to resolve problems within the available resources; - Work as a team and support each other; - if you want others to be present and regular then ensure maximum attendance of yourself	Yes, as head of institutions, we are using all those learning in our routine official business (3 responses). We were working as ADOs when we got trainings on leadership but now we are working as Head Teachers of the high schools and we are using our learning in better management of our schools (2 responses).	As we have already mentioned that leadership training was very useful and helpful to us in making management of schools/institution better and efficient. Thus we would recommend these trainings for every head of institution.

Leadership Respondent Group (LG)	**Q4**: Do you think this training is linked to professional development of teachers and improved student learning?	**Q5**: Did your efficiency as a manager improve? How?	**Q6**: If we plan such trainings in the future, how can we improve them?	**Interviewer Notes**
LG1	Yes, this training is linked with the professional development of teachers and improved student learning because we were also told how to monitor schools. Continuous monition and follow-up helps build capacity of teachers as result student leaning increases (3 responses). After theses trainings teachers have stared involving students in learning process (02 responses)	Yes, after training on management I have become more vigilant in monitoring. Now I can analyze data very quickly and this has increased my efficiency (3 responses). After training on budgeting and audit, now I can check budget of my distinct in few minutes.	Communication channel among all parties should be made proper before the launch of any such projects. (We had to coordinate with different stakeholders in this project which was painful) (02 responses) Training Need Assessment of all cadres should be carried out before the launch of project. (01) Contents of training should be shared with participants before training session. (01) Refresh courses after every three months (04 responses)	Participate: *Name 1* DEO (training attended 2011 Islamabad) *Name 2* DO (training attended 2011 at Karachi) *Name 3* DDEO (2011) *Name 4* (2001 Karachi

LG2	Mr. *Name* Head Master of *Name of School* told me that after attending this training my approach towards improvement of school and education has changed and I involved my students in the educational activities. As a result of that students of my School have start publishing of an educational magazine, which contributed a lot in promoting reading and writing culture among students.	This training enhanced our management efficiency and we are working better, even in the tribal culture. The culture where no body (influential persons) is ready to come forward in making education environment good we are trying to reduce hurdles at self help bases. As you know that every thing was destroyed by the devastating flood in 2010 but we did not get disheartened and continue our struggle and now the things are moving.	* Training on budgeting should be made part of the training program * Training of managers should be conducted on monitoring * Leadership training should be arranged for all head teachers * Managers should be train on basic computer skills	Participants: 4 (3 Male + 1 Female) Two of them were ADOs and two were Head Teachers of High Schools.

EMIS User Data

ED-LINKS: EMIS User Questionnaire (EDO, DO, ADO, etc.)						
EMIS User Respondent	**District**	**# of years in job**	**ED-LINKS program**	**Q1**: What was valuable, if anything, about your participation in EMIS training?	**Q2**: What changes did you make, if any, as a result of your EMIS training?	**Q3**: Do you report the results of your regular school site visits to EMIS cells? If no, why not? (For DOs).
ER1	Sanghar	N.R.	EMIS, Financial Management, Leadership and Management trainings	Education Policy of Pakistan, Importance of EMIS in Education Management, use of utilized funds efficiently by proposing innovative ideas	Previously, There were funds in education budget those were unutilized every year (Account four). I prepared some proposals and submitted to higher authorities for getting approval and some of them I have implemented accordingly, especially construction of damaged buildings	I am responsible of EMIS system in the district, I used to receive reports from DEOs regularly and it because now routine as EMIS cell is most important department now in the district as everybody from the province asked reports from us, and we used to give quick response

ER2	Peshawar	18	2009	The most valuable thing in this training was Data Management System and its usefulness for education department. All the data can be acquired in an integrated form at any time it this system works. Although the training was very useful but due to some technical language I felt some problem.	I will consolidate all the information concerned with my jurisdiction, and ask the relevant persons to link it with the main server room in EDO Education Office, and share it for everyone to use this information. This information is useful when it come out of computers and be utilized by the relevant persons for some useful purpose.	Yes, to some extent we report the results of schools, but it never works as per given criterion as there are lot of problems regarding compilation of data, its up gradation and report as per EMIS training. Load-shedding, non-technical staff of computers and time management during routine activities was the major problems.
ER3	Jaffarabad	12	MIS Training	In this training we learned how to monitor schools and how to ensure quality of education in schools. We also learned about the application of low cost now cost trainings. The training on MIS was very useful in which we learned the importance of data and methods of analysis of data for better application. We were also told that how we can be. Before the training we were not aware of the use of BEMIS data. Now we feel that the data is very crucial as we get book, funds and other equipment on the basis of data.	Actually I don't use the EMIS data we hand over data in hand written form to EDO Office. DEO has deputed Junior Clerk *Name* to computerize data.	No. I send my report to DEO Office and in some cases to Director Education
ER4	Sukkur	N.R.	EMIS user and Leadership and Management Training	Nobody particularly attended EMIS training, it was part of the training we got in management training	Now we are more frequent users of computer and other IT equipment like multimedia and Email	Yes, we used to collect data quarterly to update our data base, and then we report it to Provincial office and we also disseminate it between all stakeholders

ED-LINKS: EMIS User Questionnaire Continued					
EMIS User	**Q4**: Can you directly access the EMIS database? If not, why not? (Dos)	**Q5**: Have you used information from EMIS to advocate for more funding for your school(s), district, or the education sector? If not, why not?	**Q6**: What do you use EMIS data for, if anything?	**Q7**: How do you think EMIS data can be used more effectively by your district/province?	**Interviewer Notes**

E1	The DEOs cannot have direct access, but they can come to our office and collect whatever they want. And the practice is, we provide data in CDs to all concerned for their planning purposes	YES, EMIS is now a major source of planning and information sharing for budgeting and funding	No response	Taluka should have also a proper system of EMIS at their own and we should be the district level body to consolidate.	
E2	No I can't because delink of main server, energy crises, and non provision of technical equipped computer operators in the offices, and schools, even the data of main server if accessed, is not updated and up-to-the-mark.	No because it has lot of problems, whichever has been discussed in Para-4 of this questionnaire. So without proper information how we can advocate someone. Education department is recommended to take serious remedies about up gradation and operational aspects of EMIS system, and data management and its timely up-gradation.	It is just use to know the strength and the result of some of the schools, whose administration update the data timely, other wise it is of no use, and don't meet all the purposes whatever has been determined for EMIS system in Education Department.	Education Department should integrate, update, and timely management this data on a Provincial and National data grids, which can be shared with all the stakeholders in this country. Actually its updating, continuities management, and regular improvement in the EMIS system is mandatory other wise no body can get its effectiveness. Data management and system analyst should be appointed and its maintenance should be handed over to the technical persons who will hold responsible for troubleshooting. As the examination system based on EMIS in the Punjab severely flopped in 2010 in Govt. of Punjab which suffer the results of many students across the Punjab. That was the bad experience and provides an example to learn in the field of IT based projects and their application in Pakistan.	
E3	No, only *Name* can access it	Yes w do, we get computerized reports from DEO office and make final recommendation on the basis of those reports	Teachers bio data, number of teachers and for so many other things. The MIS also provides us useful information on expenditures and fund required for future. Mainly DEO office uses the data for analysis, but during flood all records were destroyed. (ED-LINKS promised to provide computer labs in all schools but only two schools were provided labs)	First of all there technical staff should be appointed, in our district a junior clerk has been deputed for this job. Data of all school should be interlinked with the district and provincial data. Data should be updated on regular basis.	Q2: (*Name* has also attended the same training, we tried to contact *Name* but he was on leave on visit day) Q5: (She was unable to describe those reports in detail) Q6: (ED-LINKS promised to provide computer labs in all schools but only two schools were provided labs)

E4	Yes everybody can collect relevant information through proper channels but it is not yet online with the access to everybody	Now everything and every type of planning and propositions are depending on EMIS	For planning, monitoring and reporting	Each officer from school to district should have proper computer and an operator, and it should be linked to each other so that the information collection and sharing could be quicker and efficient	Data entry note: Same participant as LR8, answered a double questionnaire

Total EMIS users interviewed: 4

Transcripts from FATA

1) Bismillah-ir-rehman-ir-raheem

I am ED-LINKS Evaluation Team Member #1. I was the team leader that visited FATA. I was accompanied by Evaluation Team Member #7. We had a very intense and tight schedule for FATA. We visited Khyber and Mohmand Agencies twice. We went deep into the Mohmand Agency - it was very risky and we were very fortunate and confident that we have done a lot of coverage for these tribal areas. We visited both GCET training institutes both for males and females in Jamrud, Khyber Agency. We visited higher secondary schools, male and female, in Jamrud and high school in Mohmand. We had three roundtable conferences in base camp Peshawar and also had so many interviews with teachers, AEOS and Administrators. We also met the director in his office and had an intensive discussion with him. We had a meeting with different AEOs.…The AEOS consisted of males and females, so feedback was very comprehensive. [We spoke with] [*Respondent 1*] and he had good appreciation about the ED-LINKS program. He was of the view that the trainings were very good, very nice and he was of the view that the resource person was of quality. He was further of the view that the EMIS program has been very effective and efficient for them to plan their region. We asked three basic questions from wherever we went that what are the strong points of the ED-LINKS program? What were the weak points of ED-LINKS program and how they visualize future development under ED-LINKS program? I mean if at any time some programs are to be started at the end of this present ED-Link program, definitely in 2012, what kind of program do they visualize by the USAID that can be welcomed and appreciated?

Mr. [*Respondent 1*] was of the view that more trainings need to be conducted and that the trainings should be based on practicals, more subjects should be introduced. He also thought that the quality of the spokesperson should be enhanced and more visual and written material should be given out. In his view, this program that has started is very good but they had to work in a very difficult environment - it was not very comfortable. Also the flood situation and terrorism interrupted conveyance of funds to other areas. So the program could not be fully implemented.

He was of the view that in future more subject orientation trainings should be given to the teachers with the use of EMIS system: distributing the number of teachers who need training and number of them who don't. He also suggested that before launching the program, an intense feasibility study may be conducted; the sources may then be allocated on the bases of the feasibility studies. Also only then should the program be initiated. Also feedback from the initial training should be acquired because the team was of this view that there was no serious follow up or evaluation, conducted for this program. Also that the feedback was not up to date. [*Respondent 2*] was of the view that since a lot of interest is generated and there has been an improvement in tribal society, in their culture, in their behavior, in their outlook, about this program so more such programs should be introduced. He was of the opinion that future programs have made him consider about getting some reconstruction done - that is some civil work, because a lot of damage has taken place in the institutions - particularly because of the shortage of electricity. This is causing a lot of disadvantage to the IT labs. Providing them was a good approach as the people of the FATA area were exposed to such equipment and technology. They have taken a lot of interest in this technology and slowly awareness is spreading about it.

Due to shortage of space the science equipment is not being used that effectively or efficiently. something needs to be done about that. At this point of time, Mr. [*Respondent 3*] and his female

colleague, [*Respondent 4*], joined us. They have been beneficiaries and they also got training in management and subject wise in mathematics, science and English. They talked about the training program and praised the resource persons. They also thought that more intense training should be organized and that a link system should be introduced amongst the resource person and the trainees. For this, they asked for internet facilities or any other facility which may help in this. They also requested that an alumni be created. Again, they emphasized on the importance of the follow-up sessions and how they were not performed accurately. As the some of the previous trainees of 2008-2009, need follow-up trainings as new curriculum is being introduced.

EMIS has helped out a lot and I think now they are now in a position to use more EMIS - helping them in planning processes when accurate and efficient data is available. However they also thought that the procedure of loading, updating, etc. should be evolved as activity has started. Another suggestion was that the training of primary teachers should also be organized for all teachers - even secondary level teachers. The prime emphasis is on methodology. Fata has 7 agencies and 6 fr regions so in total there are 13. 2 fr regions are present to one agency - in that context our visit to this high risk area has been very effective. We had some meetings with the teachers too - we visited [school name], it trains females. We met their principal - her name was [*Respondent 5*]. She is an educated lady. There are 4 such departments in fata - 2 for males and two for females - one at Khyber one at Khurram, same is the situation with males. The principal was of the view that the program was very useful, and it in a way has changed the outlook of people. They pride themselves in being beneficiaries of this program as they have provided 3 labs, equipment. They were made the focal point of training at FATA. They have imparted several trainings to teachers here as they have a hostel also under ED-LINKS program – probably 3 hostels they have. She was of the view that EMIS system is very helpful as it provides them with knowledge of materials available and thus helps them plan for the future.

They have also been provided an English language lab -it is fully funded and effectively utilized. This has helped change the students' attitude towards studies. They practice by hand and do a lot of work. They have received a lot of donations - they have fridges, photocopiers, furniture, etc. She sees ED-LINKS as a very supportive institution and hopes to see more development from ED-LINKS in FATA. Because one of her teachers went to USA in a program, she feels very proud - that it was due to the ED-LINKS system set up in her school. But again, she too requests intense follow-ups and that an alumni association is formed. Since this is a remote area, these activities have brought about a great deal of change. She did say that there were some security risks -which have caused them some problems and this being a remote area. If some program could be introduced for females, more female teachers should be trained and school practicals should be more. She also emphasized on the presence of internet facilities, she also suggested that now was the time for e libraries.

[School name] is the male department in Khyber - there we had a discussion with Mr. [*Respondent 6*], the principal. They also have a computer lab and 2 training labs. They have books and were very positive about the program. As far as EMIS is concerned, the principal considered it to be a very useful program but he mentioned that it should be online and more people should be trained in the EMIS system. Their school also received bags, books, notebooks and other things for which they are extremely grateful. They believe, though, that there has been too much over-lapping by all donors and say that there needs to be some order. As they do not want any wastage of resources to take place, a lot of people were trained again and this was not favoured. A stronger database was asked for too. They also suggested that there were several clusters of schools present, not so centralized that needed this program, so basically they wanted it to be spread more, and not just that, they believe that every school should have

the ED-LINKS program - it has been so advantageous to them. They also wanted follow-ups of the implementations of the plans. As far as the future of this facility is concerned, the principal believed that more students support programs be initiated and areas like income generation should be encouraged so that they can gain knowledge about self-sustainability and how they can utilize their education. He also said that as this area is extremely poverty ridden, more textbooks, uniforms, furniture etc. be bought as they are needed. Also, if financial support could be given to students, particularly at high secondary level, so that rate of drop outs becomes less and more children are educated. Also if the psycho social help could be provided as a lot of incidents take place in this area, which lead to omen and disturbance in the students.

Thank you

2) In FATA, we had a meeting with Mr. [*Respondent 7*]. He said that whatever the support provided under ED-LINKS was good and very helpful, But he said that some planning process should be should be evolved for the sustainability of the support because he was of the view that support come and go but leave us dry, generating an embarrassing situation for them. He was not very comfortable with the shifting of things from his agency to other because he has about 25 high secondary schools…. He got 9 IT labs and suggested that more schools should get IT labs. [*Respondent 7*] did a very fine thing by calling 6 headmasters of the schools under him to his office. It was a good idea – they included [*Respondent 8*], [*Respondent 9*], [*Respondent 10*] and a principal [*Respondent 11*] and currently a principal [*Respondent 12*], and [*Respondent 13*]. They were of the view that under the program's implementation, there were no vehicles for the headmasters for inspection of institutions. One of the headmasters came from a distance of 150 km ([*Respondent 9*]). He is a teacher and was of the view that more exchange programs should take place and duration of extension programs should be extended. He was of the view that more computer teachers should be provided. Mr. [*Respondent 10*] felt that whoever is supporting teachers should provide more teaching kits and notebooks etc. He also said that the facilities currently existing in FATA are not enough and a student bus service should be started. Also, again, there was talk of electricity and water. Also if more awareness could be provided about the U.S.

Thus building a friendly environment, Mr. [*Respondent 12*], was of the view that there is staff storage in school but not enough classrooms and not good water facilities. [*Respondent 8*] was of the view that for one given district, training of teachers should be organized at a larger scale by ED-LINKS. But she was happy to inform us that now more classroom interaction has started. She also mentioned that science meals be organized and that more libraries be made. Mr. [*Respondent 7*] was of the view that ED-LINKS has been a program of activity on demand - all that they demanded has been provided including 6 mobile computers trolleys, chargers etc. Eight of their students were sent for training, 48 scholarships were provided and lab equipment was given to 19 schools and child support programs were started in 6 schools. Also training of English has been provided to 20 females and 19 males. 2 [education officials] got academic training in Maths and English, 70 people in this area got financial management training, 9 people got PC1 training and under EMIS 3 computers and UPS. Also furniture has been given to classrooms - classroom based libraries were provided, junior clerks got training too.

To me, the weak areas were that the schools had been damaged and that the children are sitting in tents. Teacher training has been very useful - he provided us evidence saying that for the first time 15 students in high school exams got 100% result and 6 students got 98% results. He was of the view that new areas should be taken for future training and new buildings should be built and that transport should be provided for supervisors and students. He felt that additional rooms should be provided too.

In order to create a friendlier environment in FATA, sports facilities should be provided to schools. He also suggested that in FATA, a lot of inexpensive land is present - it could be used for sports fields.

Then we had a detailed interview with Mr. [*Respondent 14*], he said that new teachers be given orientation before induction to the job. Now for the future as new curriculum is coming up, training should be organized. Training should be change and result oriented, some change should be seen. We had detailed group meetings in that we met a lady named [*Respondent 15*] and she is from north Waziristan. She came from all the way there. She had a detailed discussion about this and she appreciated the program. She attended the IT training and praised it. She also thought that the master teachers' training was very effective. Although she said that some schools did not yet have computers but and their labs were empty. The classroom based libraries and furniture was good. Some of the teachers received training in Chitral. She was of the view that alternate energy sources be provided so that the problem of no electricity be reduced. He emphasized on establishing washrooms, particularly for the girls. Then we had Mr. [*Respondent 16*] who happens to be a headmaster and has attended master training. He thinks that ED-LINKS training builds a teacher's confidence and self-respect. It is very effective and he was all praises. But he did say that if the training had been given in English instead of Urdu, it would have been more effective. He also suggested that the manuals given during training should be written a bit simpler - for better understanding. He is of the view that PTA should he activated and higher master training should be organized. He too suggested that purified drinking water be provided, along with introduction of strategies to decrease drop outs and increase enrollment. He thinks that the trainings were too overloaded with work and were a bit intense. Also that the training information was not communicated properly, saying that they were promised to be taken abroad. For this reason passports were made but in the end this did not happen. Then Mr. [*Respondent 17*], who happens to be the headmaster of one of the schools said that the trainings were informative, computer trainings were given but no computers provided. Books for the library well some were said to be irrelevant. The training that they took has not transcribed because of the security situation. Emphasis was made again on follow-ups of trainings.

They suggested a continuous process for training and follow-ups and that new headmasters should be trained and that social studies training should also be given. There was a lady teacher… (*Respondent 18)*. She commented that the training and resource person, both were good but that more awareness should be provided about going abroad. She also said that the computer labs should be provided with equipment. Their labs have been destroyed - this was a great loss for them. More teachers community reaction is required. She also stressed about the fact that the training time is too little and that it should be extended. Science fairs and funfairs should he organized along with parents day, sports day etc. The Maths, Science and English trainings should be supervised properly so that in the end only the best teachers are chosen to spread their knowledge. Follow-ups should be organized immediately after the training program has come to an end so that the teachers trained are the best.

Mr. [*Respondent 19*] attended the school management training along with the fellowship training. He took a lot of benefit from ED-LINKS training and he was responsible for involving the community to rebuild his school and generated 50 million rupees this was reflected in Washington. He said that more classrooms need to be provided so that the classrooms are not overcrowded, making the teaching system more efficient. Arrangements for emergency lights should be provided and flow of electricity should be ensured. He was of the view that all the schools in FATA be provided with furniture. He also said that summer camps should be organized for the students so more activity can occur and students from other schools can also interact with each other. There are 11 laptops in their IT lab. They also

requested if teachers could be trained with modern methodology, and a survey be conducted for science kits, furniture etc. He also suggested that need based assessments be conducted with an incentive for best performers. Also if a coordinator of ED-LINKS be based at agency level. He also came forward with the idea of third party evaluation.

Another person I came across was [*Respondent 20*] from North Waziristan. This was a big success that a representative had come from North Waziristan. She too was all appreciation and praises for the program as she considered it a good capacity building program. She got IMS training and it is being used efficiently. I was assured that she is one of the teachers of the TAP program and praised that she too is of the view that best schools of the U.S.A be brought together with the schools of FATA so that there is more exchange of students and teachers. Also, sharing of curriculum and teaching methodology. She said that teaching is a profession for which trainings should be organized about how to teach special children.

The following day we met [*Respondent 21*], …. He appreciated the Program. He was trained in financial management. His views were that training programs should be more activity based as that would be more useful later on. That is what helped him manage his institution. He thinks that English needs more time and so its training should continue for some time. Also that a few government schools should be turned to A class English medium school so that government schools can come shoulder to shoulder with private schools. Also that more guidance counsels should be initiated.

[*Respondent 22*], another teacher I met, teaches maths and computer studies. She said that her training was very useful, providing all kinds of training. She was of the view that it enhanced her knowledge. But said that because of the situation in FATA right now, psychosocial help be provided and if possible, psychosocial training be given.

She said that certain people repeat trainings and that this should be stopped. She also mentioned that the duration of trainings be increased. Also that the delivery of material sent should be ensured that is very important. Training meetings should be organized at local levels and its strategy should be how to implement the plan. She thinks that the science kits provided are very good but not effectively used due to lack of skills. She is of the view that in future some schools should be identified as best schools and teachers should be given awards. This would provide more incentive for excellence. Security systems should be advanced and the introduction of sports ensured. Again she mentioned the need for proper power supply.

In another round table conference, [*respondent 23*], the head teacher from … attended it and she took training in the several programs including the leadership programme, the computer training program, and the management program. in that she learnt how to handle classes and how to involve all stake holders in the school's development. She is of the view that all the respective teachers be financially supported by the school as FATA is a conservative area and special support is required for women. She is of the view that follow-up meetings be held and that science education should be further encouraged. Pure drinking water and washroom facilities were asked for also community involvement program should be set up. Interestingly, she is one of the teachers that supported the introduction of sports to schools and that teachers be trained in that as well. Activity based training should be the new focus. There should be a proper link with planners of curriculum and with that proper trainings should be introduced regarding the curriculum. Educational psychology training should be given to teachers and need based subjects be taught. They were other people having the same thoughts as well but they too think that the feedback has not been properly assessed for the trainings.

FATA training program of ED-LINKS has enhanced the quality of education here. Now, people are more broadminded than before the program - awareness has spread. More scholarships should be given to FATA students as most of them need financial help. There is also a request that a modern campus be built. [*Respondent 19*] said that materials be provided for the production of electricity from the sun. Another teacher from … (*Respondent 24*), who attended, said that the mathematical learning was excellent. He wanted the duration for training to be extended as well. Again, the need for new training was expressed as new curriculum is being introduced soon. Mr. [*Respondent 25*], a teacher …, suggested that ED-LINKS should convey a survey for the need of computer labs and computers. Also that buildings should be made available as students are studying in tents. During the trainings its requested that knowledge be shared amongst the trainees. Mr. [*Respondent 26*], an English teacher from Mohmand Agency, said that there is a lot of intervention by the maaliks that should be limited. Mr. [*Respondent 27*], an English teacher, said that the presence of Talibaan may only be reduced if more and more children are educated. For this, proper infrastructure etc should be provided. For FATA, this is even better because it is one of the developing areas. This would be the ideal time to expand the program. Everyone's view is that ED-LINKS has helped a lot and supported its cause all along. It's helped the people of FATA recognize the outer world but also that ED-LINKS should not divert their funds to other programs and fully follow this one till the end. For the future programs almost all the participants at the round table and interviews that a need assessment should be done and a lot of interaction should take place, only then funds should be sent. FATA is a very different region then others, so it should be treated as such as well. Here the focus should be on what they want - that is education, etc. In order to make FATA friendlier and make each individual a part of this program, the donors should invest in the physical development.

So the summary of all the interaction that has taken place is that ED-LINKS has done a good job, it has provided good equipment and training. It has been very active in FATA despite all odds - it has been remarkable. But the criticism remains as well, which stats that there has been no approach from here to here, so in a way ED-LINKS is leaving us high and dry, and better guidelines need to be provided.

Thank you.

3) Today is 12th of July 2012 and I was asked to contact a few people in FATA. This was to find out how they are under the Malik and how they have addressed this issue. I talked to the principal of one of the institutions in [district name], she was posted here as the headmistress of the [school] (Respondent 36). She has been on the ED-LINKS management program, and has also been to the U.S. for one of the training programs. I asked her about the training she got in the management program, she informed me that, the skills she learnt there were very good and effective, she learnt a lot and brought and implemented all of her knowledge into the school system, including English along with her managing skills. She basically modernized it and made it more attractive for the local people. Initially she took the Malik and the local people in confidence and made them understand why female education is necessary, here this should also be kept in mind that … is located near Waziristan, and how she runs this [school] is a true achievement. Her management style of involving the local people in the school system is proving to be beneficial as it is increasing the enrollment of students. Now more girls are joining. The school has several classrooms, a library, and also has the EMIS system in her school; she says it is very effective, as far as planning for education for the schools concerned. Communication between the top and bottom level for resources etc. may be a little slow. But the Malik was very helpful, extending all

facilities for the promotion of education in his region; he even gave a building he owned, in order to provide a place for teaching.

As far as the influence of Malik here is concerned, here he gradually started intervening in our schools, for example he asked for jobs for his people, this was a very challenging situation for our people but since the school was expanding and the government was providing certain funds and jobs, we were able to accommodate him. The unfortunate part was that as they were the Malik's people, they were very uncooperative, she pushed them to do their jobs, but altogether it was a very difficult situation. After the last summer vacations the attitude of these people became even more casual as they, along with their jobs at the school, worked for the Malik as well. She tried talking about this problem to the Malik, he informed her that he would fix this problem but in the end the Malik intervened into the management, making her work very difficult. She took strong measures to ensure that the old system be brought back, but this led to clashes between her and the Malik. She was transferred out of that school, to a different location. That is, sadly her story, but she is still determined, saying that even when she goes to work in a new institution, she will work with the same zeal, her learning and administration style led her to be removed from the previous institution, and she was told that this was part of the job.

So this is basically one of the many stories of intervention by the Maliks.

4) I called another lady, she is the principal of [name] training facilities for females, and her name was [Respondent 28]. During her interview I asked her how beneficial the ED-LINKS training program was for her, she was all praises for the program, saying that ED-LINKS provided support for the institution, during a time which was very difficult for all of FATA. After the program was transferred to her college, they have been successfully organizing the management courses along with the subject oriented courses. She also said that she has been given financial training by the ED-LINKS program; this has helped her a lot as she has been able to straighten out the school's finances, and now does not need to depend upon the secretarial staff for this. She has quite a lot of experience as she was a teacher too, before being appointed as the head of this women's college. She says that before, they were more dependent as far as management and finance were concerned. She particularly expressed difficult situations at the time of audit, serious threats were made by the external auditors, but now due to ED-LINKS training, those problems have been overcome as she now understands the rules and regulations better. Now she can even talk to the resource person to facilitate them in critical issues. So for her, the training proved to be very useful. She also attended the leadership course; this made her more confident about her leadership qualities, particularly in a place like FATA, where women are challenged at every step.

Even when there were curfews and war like situations, she stood ground and operated the institution in such a way, that it remained open throughout those times. She helps the girls boost their moral as the ED-LINKS training did for her. She appreciated all the surplus materials provided to the college such as furniture, a fridge, a heavy-duty generator, class room libraries, 3 science libraries, a computer lab, along with a language lab. ED-Links also provided a girls hostel for them, it was furnished. For her the big challenge is the continuation of this program, and to keep it as it is. She claims that her pre-service program is very efficient because now the number of teachers trained by ED-Links, use modern methodology, computers, IT facilities, and science labs in imparting knowledge to the students; this has shown a definite positive effect in the learning of the students. When asked if they need some other facilities, she replied that they would really like to expand their training and so if a digital library that included video conferencing be provided etc., this would further enhance the quality of trainings given. This is because people who are not from FATA, and don't speak Pashto, especially the resource persons

are reluctant to come here. This facility would provide communication with them. She also asked if Wi-Fi would be provided to the campus, as it is very popular these days.

Thank you.

5) During our FATA visit, we had a detailed discussion with director FATA, Mr. [Respondent 29], who was of the view that it was a good program - the start was good and area of intervention was good. Also that there was a lot of enthusiasm seen at the start of the program, but during the course the points were diverted for some other purposes. He praised that 15 schools base libraries had been established in frivolous institutions, saying that there are 300 schools in FATA and out of which 13 are high secondary schools and 276 are high schools and elementary schools

He was of the view that more equipment and material should be provided to FATA so that people can continue benefiting from this program. As the student population of FATA is about 6000, it is very important to give FATA more language labs, teaching kits with methodology and that quality education workshops be organized.

The general view was that in order to ease the situation and bring development in FATA, exposure with relation of distance should be conducted and whatever are the committed resources they should not be diverted. He expressed very serious concern regarding the tense situation in FATA at the time this program started. He was of the view that now things have eased out so it is better that ED-Links may like to review their strategies and whatever funds have been diverted for construction of other purposes need to be invested in FATA for the progress and development of the students. Then after that, we had a meeting with … [Respondent 30]. She said that the capacity workshops organized with respect to maths, science and English were good. As they have generated good results where ever those training have been given as the teachers have learnt this technique and implemented it in the classroom. This has led to an improvement in the teacher's outcome as well. She talked about the science kits and how more kit programs need to be organized - so far only one has been organized. She was of the view that the kits are used up to 10 percent because of the management and lack of skill and experience and the extreme restrictions imposed on the management due to audit observations. She said that the follow up part of the program was also weak due to none availability of transport to the FATA directorate. She was also of the view that future programs organized are monitored strongly and have regular follow-ups. Also that these activities should be handled by out sources.

She also commented that in the future programs designed with respect to maths and science, social studies should also be included. She said efforts should be done to build capacity of teachers and while teaching, they should be observed in classes. She also suggested that teaching kits be provided to all schools, and best students be provided scholarships so that there is more attraction towards studies. She also said that student exchange visits should be organized within Pakistan and abroad. She hinted towards the conveyance problem for students and teachers alike. She thought if some form of transport was provided it would be ideal for the students. Her view was that the IT equipment is not working out due to poor connections. As there is no electricity, she recommended new ways to obtain power using solar panels or wind generated electricity as it gets quiet windy in these areas.

Another gentleman, [Respondent 31], who is EU development, also participated in the meeting. He said that in certain schools the space was provided for computer labs – however only refurbishing had been done and no equipment has been provided.

6) Hi, this is Evaluation Team Member #1. Alright, we had a detailed meeting with Mr. [Respondent 33], who is Principal of [school] …. The meeting was regarding the support given by ED-Links. He said that 11 laptops were given to the school. Two teachers were trained under the program. He also said that about 332 bags were given -books were given along with notebooks. As far as the training was concerned, he was of the view that the training should be consumer based and that EMIS is a very strong and vital system so top of the line machines should be provided. EMIS helps them in upgrading the school and in the future. He was of the view that more students programs should be associated under ED-Links or other donor agencies. Also that uniforms should be given to the students and more notebooks should be provided. More furniture was asked for. Generally, we have observed during our visit that there was a lot of appreciation regarding the furniture, the classrooms, libraries, labs and scientific kits. The principal was of the view that right now in FATA there is a lot of overlapping in the training of the donors. Also, that donors should have a database, under which it can be ensured that trainings are not repeated and resources not wasted. The teachers of FATA of secondary schools need to undergo training.

After that we had a detailed meeting with the Principal for the [college] … (Respondent 34). There are two colleges for boys and this was one of them. He mentioned that they too had been provided with a computer lab and training in science, English, and maths. A hostel has been built along with a house for the principal. They were given a generator for these as well. They requested for scholarships for the boys and wanted more materials. We also had a meeting with a lady by the name of [Respondent 35]. She happens to be the Principal of a [school] for girls in …. She was of the view that ED-Links training should be more about classroom based activity training. They too had been provided with teacher training kits and science kits. The diaries provided by ED-Links are being proven very useful as it contains all the daily activity that takes place. The classroom library has been very useful - she informed us that 4 of her students went for the student exchange program and one girl topped Peshawar board - this was something she was very proud of.

Although she informed us about a problem that the maths trainings were less and more would be required. She also said that whatever equipment is given, training on how to use them should be given. She suggested that ED-Links should focus on providing pure drinking water and on supplying proper electricity - maybe through solar panels. She also suggested that there should be more computer trainings. She also said that USAID, or any other donor agency, should focus on sports as it helps promote a softer image, particularly in the girls school, and so for this sports equipment should be provided and people should be trained to teach different games. This should be kept in mind for future programs

After this, we had a meeting with [Respondent 30], who is …. She was of the view that follow up programs should be taken more seriously - self-reflection should be assured. Provision of IT kits, teaching kits, etc. may help in proper study of IT. The student exchange program was a very forcible by her. She was of the view that the students face a lot of conveyance problem so something should be done about that and if possible to provide transport facilities to the students and teachers so that they could safely travel to and fro. This would also increase number of students. New curriculum is coming up for science and English so training should be given to the teachers.

7) [Respondent 32]

Interviewee: .....And that was my first day as principal of the teacher education institute, when I joined the job, I stayed as the education officer … for 2 years. This was my first experience in the government - you can be transferred anywhere and you have to go. When I first came all the training I had was my own personal education what I had studied in B.Ed and all the trainings I had personally received that was all the backup I had because then there were no such academies that took you in and trained you, as there are now for example the civil services academy. These days they just train you and send you. In my days teacher education was not that stressed upon - people used to say that if you want to get paid for nothing but relaxing, join the teacher's education programs. Gradually when times changed, teacher's education systems were focused on but gradually, in 2007, it was at its peak. This school I left in 2000 and become the principal of a high school, I returned in 2004 and took position as the principal in this college again. When I arrived, we started a B.Ed program using our own resources, our own faculty. Those who had done M.Ed, we took this step, in all of FATA and KPK we are the only college who have done so. At that time Dr. [name] was our director, he was the one who encouraged us to do this saying, why should we not do this and so we did. Then, a year after the introduction of our B.Ed program, USAID came in contact with us, and funded the B.Ed students, giving them rs.5000 each per month. During that time, in 2003-2004 our Team Members travelled abroad - there were four of them. The team included [4 names]. They were sent to learn how to teach science to elementary students.

Interviewer: Was this under ED-Links?

Interviewee: No there was no ED-Links then.

Interviewer: okay.

Interviewee: this was the first batch that went. They were sent to the U.S.A. and returned after 4 months. when they returned, they had completely changed, it was clear to us when they came back that their vision about teaching had changed, and of course, it had to, that had been a different place, a different system, they brought with themselves formal and informal education, it felt good, the whole college worked as a team, that is a very special quality in this college, everything is done as a team. All that was learnt abroad was applied as well as shared amongst the faculty, we have a small faculty, counting myself and the VP we are 11 in total. At that time there were diplomas in education. Fortrainers.

Interviewer: what about M.Ed?

Interviewee: there was no M.Ed, and there are several reasons for that as well. In 2007, well in those days there was an AED program, in which these teachers went to America, then after that we worked with ISRA for a year, then the ED-Links program was introduced to us. The situation was not that good in FATA from2007 to 2010. FATA was a very good area. The people here wanted to learn, anything they want to move forward. I have been here since 1994 so I know. The females too, want to study; let me give you an example, when I came in 1994, we took our students for teaching practice, then I was the principal and the class teacher as well, we had 16 students then. About 7 students in 8th grade and about 4 to 5 in 9th grade, the same was the situation in 10th grade, there were more students in 5th grade but altogether very few. Look, people want some ideal, or something that makes the whole picture more attractive, they need a model, the moment some students graduated and got offered jobs, our numbers started increasing, once where there were 7 students now there are 80. The students of the school, once counted in 10s and 20s are now in hundreds. So you see how the number has increased? There is no space to tell you the truth, to accommodate this number of students. Degree colleges opened a lot of students went there, they studied B.A, F, A. just imagine, this is an area where

the literacy rate is the lowest, here the female literacy rate is about 2-3%, even though FATA has 10 administrative units,7 agencies,6 FRs, 2 FRs make 1 unit while 1 agency makes one unit, that is why FATA has 10 administrative units. Like FR Peshawar and FR Kohat have 1 unit, FR … and FR … have 1 unit FR … have one unit. These are administrative units. In this college there are a total of 4 DCTs, and we work under the directorate education FATA, we come directly under it. There is 1 for females and 3 for males. From the female administration, 10 students come here. A lot of students came from …. But when events in FATA changed, no matter how many buildings you make and facilities you give, there is still the risk of security also there is no proper transportation due to major road blocks. So no matter how good you make the scenario, the numbers are still affected. There was a huge problem here, as there was no hostel, but we slowly fixed that problem. The whole college underwent a need assessment; all our college and staff sat together and discussed what we required.

Interviewer: this was done in 2007?

Interviewee: yes, and we made a list, and prioritized it. Look, Mr. [Evaluation Team Member #1], when students used to come to our college, we would not be able to accommodate them. It was a big problem. Making a hostel, which was fully equipped as well, was on the top of our list. So this was a USAID funded project, the hostel was built. ED-Links equipped it, they gave us beds, writing tables etc. the hostel rooms even had attached bathrooms to them, this was highly appreciated. After that, a new block was made; the old building was repaired as well. The building had 20 rooms.

Interviewer: so this was all funded by ED-Links?

Interviewee: uh… The equipment was provided by ED-Links, the construction was due to a USAID project, livelihood FATA. We had pre-service and in-service teachers by then but no science labs. We didn't even know where to get science trainings from, we started using one of the rooms, collected a few materials that could be used in labs and also found old test tubes and jars etc. we put all the things on a table in the room, and that was our science room, but it wasn't a proper science room. We tried to make the environment as close to a science lab's as possible, but couldn't. Now you will see that we have state of the art science labs, some funds were provided by the livelihood program but ED-Links was the one that fully equipped it. ED-Links really helped us bring up our teaching level. In that science lab we held trainings for the in-service elementary and primary teachers, through ED-Links.

Interviewer: so how many trainings were held madam?

Interviewee: well, there were about 6 trainings. But these were just science trainings, and for the first time our people experienced a very new, very different learning environment. This was… done in 2009. 2009-2010. In 2007 we held the need assessment, it was all a very lengthy procedure. The first training was about instructional supervision, this was in between 2007-2008. In this training all the head teachers of female schools were present. High school and middle school teachers. This was their area. The training was about 4 days long, in our college. We held meetings with ED-Links and designed a module, this training was monitored very well, and there were follow-ups as well. It was overall a very good experience, everything was very organized. The good thing about this was that a lot of people participated in the programme. We even had a detailed meeting in Peshawar in which the module was developed. After that, regular trainings started, in our college, this was around 2008. The trainings were fully funded by ED-Links. After that the labs were constructed, science trainings were then held. In FATA there is a big gap in having facilities and enjoying them, for example since 2003 the electricity has been decreasing, right now, there is no electricity at all. Like, these days in a total of 24 hours, there is about an hour of electricity, 3 minutes in the morning, 5 minutes in the evening….it's quiet a difficult

situation. Usually generators are used, heavy duty generators, ED-Links provided us with heavy duty generators. We have 31 working stations in our computer lab, people with diplomas in education, well when they sit and use the computers, you can well imagine how much they enjoy this. I have been lucky in this matter that we have 3-4 teachers who know how to use the computer well. These days even a small child knows how to use the computer. It brings me great joy to see students enjoying lessons, especially computer lessons, in the lab. I think that the introduction of computer labs was excellent, what can be better than to read, study about something and be able to touch it , use it. I want my students to remain happy, I want this college to be a good memory in their future, in which along with studies they can have fun and enjoy themselves as well. We have tried to improve our English language skills as well, when we requested for equipment for the promotion of English in this college, they provided us with an LCD screen, they were winding up their project at this time, it was 2011. The screen we have set up in the computer lab, on it the teachers have loaded their stories, short stories which they like sharing with the students. There was also training in maths and English, these were fully funded trainings by ED-Links.

Interviewer: Was training given in management as well?

Interviewee: Yes, there have been management trainings. Our teachers, went to … there was a programme by Aga Khan, they told them about the schools there and taught them how to make action plans, what its importance was and how it would be implemented, the action plan.

Interviewer: Did you get training in management? By ED-Links? … Finance training? Budgets training?

Interviewee: yes, yes of course I took all these trainings. Along with our vice principal.

Interviewer: how many people took this training? Like the administration training and finance training.

Interviewee: just us 2. The principal and the vice principal. But Mr. [Team Member #1] I have always told everyone of my staff that the old, more experienced ones should impart their knowledge and give a chance to new, fresh staff. I encourage all the new people to take as many trainings as possible. I want them to share their knowledge and give a chance to the new entries.

Interviewer: what would you like to say about the EMIS program introduced by ED-Links.

Interviewee: yes it was put in our school; ED-Links really helped us in that context. They really developed the EMI system, and by doing so, it was very easy for us to ask for equipment etc. ED-Links has changed the face of the whole directorate. It furnished the whole directorate.

Interviewer: so what advantages did you receive via EMIS?

Interviewee: the advantage we received from the EMIS were that we got public statistics, we had access to it. Whenever we needed it we used it.

Interviewer: what do you use the system for?

Interviewee: sometimes we need to make projects for our college, for that we need data, sometimes the students need to be given some information, we hold small workshops for the students twice a month, for that we need information, such as the number of schools involved, the distribution of female schools etc. we also need information at the time of admissions, as several inquiries are made. We receive all this information from the system, it is available at all times so that is a plus point.

Interviewer: so it helps in your decision making process?

Interviewee: of course, it is very helpful. Even the role of our directorate, the leadership of our directorate is extremely supportive. If they had not been supportive, we would not be here, at this stage. Yes we do have ownership, and it feels good too, but without permission, nothing is possible.

Interviewer: madam I can't tell you how encouraged I am to hear your story, the enthusiasm with which you are telling us about all this, it seems that finally there is a person who does her role commendably.

Interviewee: let me tell you, that today, right now, we have students, who are getting AED, as diploma in education is coming to an end, I went to attend a meeting which the registrar also attended, there were a lot of issues discussed, especially about the introduction of AED and how it would come to be, as the facilities were not available, this and that... But you know due to the ED-Links trainings, I was so confidant I told the registrar, come and see our college. We are better in every way then any college, do not underestimate FATA. A very good team worked with us. The team we had was so sincere, we discussed everything and believe me, everything was done. Discussing is one thing, implementation is another…they did what they said they would, they were doers. I remember once there was a programme held here, it was called, FATA …, you know, we had chosen this name. A girls school was chosen to attend from … Agency and believe me it was easy bringing females here. We took a hall in … school, sat with them and had discussions, they were so visionary and brilliant, that when the time came to give prizes to the children, we had a painting session so that the children could express themselves in their own way, we had a spelling session, like a spell-a-thon, we wanted to encourage their English skills. We all sat there and kept discussing what prizes to give, and then, one of Team Members, … suggested to give them books, to further equip their libraries. The best books were bought and given, they were all very happy. Let me tell you something Mr. [Team Member #1] I have enjoyed the ED-LINKS training programme so much, that I cannot tell you.

Interviewer: the success story that you have just explained about receiving English, science, maths and computer trainings do you have some data or anything that shows this, and also about the management programmes. Can they be mailed?

Interviewee: Well, I will check them for you, and as there is no electricity, they can't be emailed.

Interviewer: Any other thing you would like to state?

Interviewee: yes when ED-LINKS was winding up their programme , they provided us with a lot of funds. They gave us a photocopier, a fridge and several other accessories as well, they gave us whatever they could, including a lot of furniture as well.

Interviewer: do you have a list of what they provided?

Interviewee: yes I do, I will give it to you, when you are leaving.

Interviewer: madam what do you think that the training provided to the teachers were they able to implement it well? Also during the trainings were there proper discussions. Are you happy with it?

Interviewee: the tragedy of our system is that there are no proper linkages within our system. From the teacher training programme when the teachers leave, and join other institutes, they completely leave behind the college; I mean there is then no further contact between us. Of course there is that personal contact, calls etc. but what I want is that the teachers all meet after some time and discuss what we have learnt. The schools are controlled by AEOs, their assistant officers etc., if these people are present at the meeting as well, for males and females, it would be ideal. I mean no one has ever called back all the trainees to see what impact they have made on the schools. Every developed system should carry out

this. The curriculum changes with time, follow-ups should be done. Yes, steps are being taken for university level students, but nothing is being done for elementary level students in this area. Now they have introduced associate degree education. This I am very happy about.

Interviewer: yes you were not in that curriculum, I was there I suggested this subject. Madam there was so much opposition against this suggestion, there were 40 people and all of them had the same problem, that where they would get the teachers from, who would ensure the quality of education, I was of a different view as I too am a teacher. Mr. [name] was my head.

Interviewee: that is so good to hear, as I was very happy when I heard of this. I am very glad that I got a chance to meet you Mr. [Team Member #1] ED-LINKS have tried everything and done a lot , to bring a change in the system. We cannot blame ED-LINKS so much, they too have some limits. We could not ask them to change everything in one day, they were not magicians, and believe me; we all really appreciate what they did.

Interviewer: Okay madam. Now please tell us about their weaker area.

Interviewee: okay, so you will find this very strange when I say that they do not have a weaker area as such, at least not that I have seen, or at my college. Weak would be when a programme that has committed itself and not done any work, that is not the case with ED-LINKS. I mean our requirements were simple, they would train us we would apply that knowledge, they would fund us we would fulfill the colleges needs, this was all done. The objectives were clear, I remember our first PC1 training, there was a lady, a Lebanese lady, she was very well known in the field of education. She came and said, dismiss this meeting as it is not an activity-based meeting, ED-LINKS holds activity based meetings and trainings, the weaker would be, that with these facilities and funds we should be quiet ahead with our goal, it will happen with time, but it's still slow. That would be the weaker area in my view. But FATA has a huge security problem; the situation will only improve when the security system improves. Look Mr. [Team Member #1], there is no electricity, what growth can we expect? In …, because of the electricity situation, students have been just sitting at home for the last 4 years, those who have appeared privately, well and good, those who haven't, so much time has been wasted. All the female schools have been blown up, what can be done about that? The school that I talked about previously, that they had come here, the teacher that had come with them was called [respondent 23]. She was the head of a school in …. She was with us in the instructional supervision training. She was a very nice lady, very visionary she has done a lot of work for education, and they were her school children. When she completed her training here and left, her comments were that she really enjoyed the training. It was enjoyed because it as an activity based training, it is extremely enjoyed. In the past there was nothing like. I tell the teachers to run their classes as they want, as if they are the leaders, and believe me, the classes are run very smoothly…..Mr. [Team Member #1] I have not yet seen any weak areas.

Interviewer: okay let me explain it to you further, there are about 400 teachers that have been trained, 400 plus IT people trained and 400 plus administrative people trained, the teachers sometimes are trained in other subjects, subjects they have no knowledge about….do you think that maybe some teachers have not been trained properly, or that there has been some error in the training?

Interviewee: I was trained well, my college trains well. So I am satisfied with it, I think the main problem, if there are any, are caused due to lack of electricity and security reasons. The trainings are usually 12 days long, the female trainees who are married and have children, well it's difficult for them and for us to train them properly. One day, I called the head of an institution and asked him to send their teachers, and if possible not to send their children along, he said to me, madam, it is a woman's job to take care of

her children. In this day and age, can you imagine? Okay, so if they send the children too, at least not all of them, teachers come with 3-4 kids. Do you know, we have to provide 5 beds to one teacher's family, where do we get this from? How do we provide this? It's not a shelter you know it's a college. This is one of the major problems we face. This should be taken care of and handled. Not all teachers come as well, we prepare for 50-80 teachers and only 40 come. This 50% turnout is all due to the institutions that send them. In these conditions, working and then involving females in our institution, it is a huge risk. You know how I feel when the trainings are held for high and middle school teachers? Relieved, because they don't have children. With the other teachers, even their in-laws came. There is no such problem with males.

Interviewer: Is there any problem with the follow-up procedure?

Interviewee: No, well with me there has been no such problem, follow-up procedures have been done in my college. When all these materials were getting put up.

Interviewer: do you propose something for the future? Like a training area you would want in the future? At the beginning the focus remained on primary education, I too gave this training to a school. Now this ED-LINKS programme focus is on secondary education, and more trainings are being given to secondary education. On science, maths, English, computers etc. the stake holders are the teachers, administrators, EMIS instructors, computer instructors etc. do you want the focus to remain on this in the future as well or do you want the programme to change their focus? Like considering all the factors about FATA that you have just told us as well.

Interviewee: they should let us bring sustainability in the trainings.

Interviewer: how?

Interviewee: It should be a regular procedure, like whenever the curriculum changes there should be proper trainings to go with it.

Interviewer: so what you are trying to say is that the trainings teams are giving trainings and then just moving forward, not looking back, not doing follow-ups. Your talk of sustainability is very good, but what is your view, like after how much time should it occur?

Interviewee: so you are asking for a time limit. Okay so here we have two different terms, one in the summer one in winter. Some schools run during summer, while some run in winter, in that period of time…

Interviewer: no madam what we are asking you is that is ED-LINKS not fulfilling its job, in some area. If you tell us this, you will be helping us as in future, the projects made will not have those errors.

Interviewee: okay so the teachers basically who are going to be teaching they do not know, they have no proper knowledge this is a problem. The teachers should be in accordance with the new technique, the new curriculum. Then the school practicals, the trainings for practicals should be more. I think there should be retraining after every 3 years.

Interviewer: what would you like to tell the donors?

Interviewee: that there should be trainings after every 3 years.

Interviewer: would you like a new subject to be introduced?

Interviewee: that's a very sensitive topic but yes, I would like the teachers to get training in …. Also psycho social help is required. I am very attached to FATA.

Interviewer: so you are from FATA?

Interviewee: no I am from Pakistan, which FATA is a part of. No I am from Swabi.

Interviewer: Tell us about all the labs equipment and improvements you want in the future.

Interviewee: focus on libraries, that's what I want. They are very important. And I want all of this to happen quickly, like action to be taken immediately, as news of the Taliban's presence has started to spread again. That is why I was worried.

Interviewee: thank you madam for giving us so much of your time, we are very grateful.

Appendix 15: Conclusions and Recommendations on Higher Education Partnerships

Institutionalizing Project Interventions through Higher Education US/Pakistan Partnerships

USAID's planned investment of US $90 million in the activities of ED-LINKS warranted the most careful assessment of ways in which project interventions would be institutionalized and sustained after the project ended. Five years might be sufficient to lay the foundation for the significant system change that lay at the heart of ED-LINKS, but such a period is too short to ensure the long-range sustainability of the project's substantial efforts, especially given Pakistan's volatile, complex political environment. USAID's planning for ED-LINKS did not include securing before project launch, the federal and provincial governments' long-term commitment to supporting the project's primary activities, and once ED-LINKS had been launched, project implementers could only hope - and did hope - that the government would appreciate the value of project work and adopt it as its own, once the project ended. While it appears that the work that ED-LINKS did with the EMIS, particularly at the provincial level, has become part of the education system, broad institutionalization of project efforts regarding learning environments, student assessment systems or teacher training programs has not occurred.

Mechanisms to Sustain Project Interventions

One key informant for this study observed that the commitment of any government to sustain donor-funded activities - usually in the form of budget line items - must be secured by the donor. No NGO can be expected to carry out such negotiations. That means that ideally in 2007 USAID would have carefully considered the sustainability of ED-LINKS interventions and taken steps to secure governmental commitment. In general there are several ways this might be structured. A donor might seek a definitive pre-project commitment. Alternatively the donor might negotiate use of a mechanism similar to that used by the World Bank in Sindh, in which cash disbursements are tied to project-related performance benchmarks which define the concrete steps to be taken by governments toward embracing project interventions as their own. Such agreements require trust, accountability and transparency, however, and outcomes may not always yield the results expected.

An alternative model to these two that USAID might explore to address the challenge of sustaining project interventions is one that has been well-tested over decades in Pakistan—introducing change through long-term educational partnership among US and Pakistani colleges, community colleges, and universities dedicated to joint initiatives for bringing about positive change. While issues of accountability and transparency may always be present, these may be mitigated by the presence of professional collegial relationships, developed over time, among partners with shared goals and objectives.

Educational Partnerships to Promote Sustainability

USAID/Pakistan has had long involvement with education in Pakistan. ED-LINKS is only one of numerous programs implemented against a backdrop of cooperation that goes back half a century. USAID also has a long and successful history of effective and sustainable educational partnerships among US and Pakistani universities that reaches back to the establishment of two Institutes of Educational Research in Lahore and Peshawar. These partnerships led to early, successful and sustainable transformations in educational philosophy and practice in Pakistan. According to one participant observer, "Punjab University benefited from a sustained long-term relationship which brought about an education revolution in the field of teacher education."[142]

[142] Prof. Iftikhar Hassan, Karakorum International University, Gilgit.

Over the decades, these and similar partnerships in health science, engineering, agriculture and science have demonstrated relatively high degrees of both transparency and ownership by the Pakistani universities involved due to collaborative, professional relationships among scholars and practitioners working together to solve shared problems. The concerned Pakistani universities have been observed generally to be relatively well-managed, autonomous, free from significant political interference, and respected both in the country and by their US counterparts. The umbrella Higher Education Commission under which they have operated has also provided independent oversight and a management structure that facilitates partnership arrangements and accountability. Recently Dr. Rajiv Shah, USAID Administrator, announced new partnerships, built on these foundations, promoting *Centers of Advanced Studies* (CAS) in Agriculture, Water and Energy.

Exploring a *Center for Applied Educational Studies* (CAES) Model to Promote the Sustainability of Project Change

In examining the prospects for ways to sustain the changes that USAID seeks in its investment in projects, USAID might consider among the options the possibility of university partnerships building both on this history and on the new *Centers of Advanced Studies* initiative. In the field of education such a CAS program could usefully explore the considerable gaps to be addressed:

- Scholarship, research and innovation
- Leadership to transform projects into programs owned by the country
- Preparation of leadership in governance at all levels of education including higher education for strengthening teacher education
- Provision of support for and introduction of innovations specifically for teacher education and for education in general

Pakistan has numerous higher education institutions--including several in KP and Balochistan—that include programs for teacher education. More than 670 formal degree-level programs, BEd/equivalent and above, are offered through more than 460 institutions across Pakistan. While the list is long, a few of those that might be examined as potential institutions for inclusion in a network of universities dedicated to research, innovation and training of a new generation of teachers are the following examples:

- *Punjab University*—home of the original Institute of Education and Research (IER) founded in collaboration with Indiana University
- *University of Peshawar*—also with an Institute of Education and Research (IER) founded approximately the same time as Punjab University's IER
- *Sardar Bahadur Khan Women's University* in Baluchistan
- *The University of Education*—that includes in its mandate oversight of a national network of teacher training colleges in all Provinces, and
- *Aga Khan University* - whose Institute of Educational Development, which was active in ED-LINKS, has Professional Development Centres in Gilgit and Chitral.

Together with one or more highly reputed American universities with strong credentials in international educational innovation, one or more of these Pakistani institutions could build on foundations already in place and implement projects such as ED-LINKS or future initiatives in primary grade reading, creating in the process mechanisms by which interventions can be institutionalized and sustained. This could lead to the wave of educational reform that Pakistan, USAID and other donors seek. Some U.S. universities with strong international education credentials that might be interested in such a partnership include:

- *University of Massachusetts/Amherst*
- *Teachers College, Columbia University*
- *Michigan State University*
- *University of Minnesota*
- *Harvard University*
- *Stanford University*
- *University of Maryland/College Park*

In short, Pakistani educational institution in Punjab, Sindh, Balochistan, and KPK, in partnership with a consortium of appropriate U.S. educational institutions, could work together to design, develop, implement and sustain project interventions—such as those in ED-LINKS—which can lead, more generally, to educational excellence in Pakistan.

Performance Indicators for Educational Partnerships

Specific criteria and performance indicators for strategic governance university partnerships or consortia for education might include:

- Independence of higher education (network) governance; roles and responsibilities not entwined creating conflict of interest
- Governing bodies have wide societal representation, keyed to achieving outcomes for value and contribution to Pakistan's social and economic development
- Strategic plan for 10 year period (design programs to last past 5-year funding)
- Identify skills, requirements for economic growth, over 5-10 years
- Balance theory and practicum—field activities, internships, apprenticeships
- Initial concept is developed by Pakistan faculty, university
- MOU signed among partners
- Cost share/GoP/University contributions
- Leveraged funding generated by partners from other resources
- Indicators linked to national and agricultural development goals
- Partnerships are built on a land-grant type of model that includes provision for each of the three critical components: research, teaching, community outreach to schools
- Joint research and publications conducted by Pakistan and US faculty
- Faculty and student exchanges
- Gender and minority equity provisions
- Private sector active engagement
- Practical and professional skills
- Links established with regional, international institutions, EU partners

Further recommended performance indicators may include:

- Increased percentage of women professionals at teaching, research and management levels
- Number and types of beneficiaries, students, teachers, Master Trainers, educational managers impacted
- Adopted new modern teaching and research methodologies
- Designed and adopted new advisory and mentoring practices

- Number of new publications and research involving innovation
- Upgrade library/reference center to be a resource that is stocked, organized, utilized; web-based research accessible and usable
- Electronic education library and on-line community of students in place
- Increased interaction and cooperation with civil society
- Faculty appointed on the basis of fulltime or visiting professors
- Alignment – solutions are integrated and coherent in their objectives
- Quality – solutions are drawn from several perspectives, thereby minimizing "unintended consequences"
- Innovation –reach a tipping point for major positive changes in student learning and teacher performance

Appendix 16: BIBLIOGRAPHY[143]*

AIR (American Institutes for Research). (2008, February). *Links to learning: Education support to Pakistan (ED-LINKS): First quarterly report: October – December 2007.* Washington, DC: USAID.

The first quarterly report describes the activities that that took place during the first three months of the program. The program was just beginning, so there is little information about the impact of the project.

AIR. (2008, April). *Links to learning: Education support to Pakistan (ED-LINKS): Quarterly report # 2: January – March 2008.* USAID.

This quarterly report is divided into two sections: Program Management and Result Analysis. It discusses management of the EDLINKS program and summarizes activities in Islamabad, Sindh, FATA and Balochistan. It was written during the first year of the project and discusses many activities related to establishing offices, planning phases, capacity building and efforts toward implementation of the project.

AIR. (2010). *Educational leadership and management training program for head teachers.* USAID.

This study evaluates the program designed and implemented by AKU-IED for training of head teachers in effective leadership, professional development, and how to better support teachers. After reviewing existing literature, 24 head teachers were interviewed and observed and the findings revealed a significant improvement in the management of schools in Sindh and Balochistan. The program led to the creation of Teacher Development Plans and School Development Plans, more efficient management of teachers' time, and usage of ICT for the documentation of financial records, meetings and activities in the school.

AIR. (2010, December). *Evaluation report on ED-LINKS science club*. USAID.

This report discusses the initiative to start Science Clubs, where students and teachers work and learn collaboratively through experiments, exhibitions, science projects, site visits, debates, quiz competitions, discussions with experts and viewing of documentary videos. ED-LINKS helped 558 intervention schools after conducting a Science Labs Gap Analysis which indicated a strong need for this initiative. Results of the report suggest that a majority of the teachers gave a positive response after the creation of science clubs and students were able to extend their understanding. The report also contains a success story of a student who developed science models and presented her work to the Minister of Education.

AIR. (2011, August). *Evaluation report on ED-LINKS EXCEL camps*. USAID.

This report presents findings based on the evaluation of ED-LINKS' EXCEL Camps from a sample of 60 students and 30 teachers. Students were selected for the camps on the basis of high academic achievement, regular attendance, active participation in the co-curricular activities and leadership qualities. Results of the interview and survey showed that teachers and students felt that participation in EXCEL Camps benefitted them immensely.

[143] References used for the Evaluation and Statistical Review can be found in Appendix 8, section D.
*The annotated resources are those that are not widely available and were obtained from USAID.

AIR. (2011). *Evaluation report on ED-LINKS computer labs*. USAID.

This document reports that many ED-LINKS schools do not have computers but teach computer science in grades 6 - 10. ED-LINKS provided 23 desktop computer labs and 45 mobile computer labs to selected schools in the target regions and training sessions to 97 teachers in collaboration with Intel-Pakistan. Almost all teachers (90%) felt that the training sessions prepared them for classroom teaching. They also felt that the training improved their skills in Word, Excel and PowerPoint. However, the impact on students was not assessed in this report.

AIR. (2011). *Evaluation report on ED-LINKS math and science kit*. USAID.

ED-LINKS provided 985 schools in Balochistan, Sindh and FATA with a math kit, a science kit and a cupboard for storage. Then, 153 schools were selected for evaluation of their usage of these kits. Results suggest that nearly all teachers had access to the kits (98-99%) but a few were not allowed by their head teachers to use the kits (1-2%). All teachers agreed on the effectiveness of the kits in developing students' conceptual understanding and a majority of teachers used the kits at least once a week, but 50% of the teachers faced problems in effectively using the kits due to lack of understanding, which could be attributed in part to the short orientation session.

AIR. (2011) *Evaluation report on ED-LINKS science lab enhancement*. USAID.

This report evaluates the Science Lab Enhancement done at 11 schools in Sindh and 29 schools in Balochistan. ED-LINKS provided 94 essential pieces of equipment in an attempt to overcome the shortage of various items in the science labs. The report is based on data collected through questionnaires from 37 schools. Results indicate that most science labs are in good shape although their status in males' schools is better than females' schools. A big percentage of schools lack instruction displays despite which the projected has yielded positive results in enhancing the use of science labs.

AIR. (2011). *Evaluation report on ED-LINKS Student Exchange Program (SEP) 2009 and 2010.* USAID.

This document reports on data collected from 53 students from SEP 2009 and 17 students from SEP 2010 regarding their experiences in the program. The findings suggest that the students benefited from the program and felt that they underwent life changing experiences.

AIR. (2011*). Evaluation report on ED-LINKS supplemental materials- English, science, math and IT*. USAID.

This report examined the extent to which the ED-LINKS project trained teachers to use the supplemental teaching/learning materials. Data was collected from a sample of 100 schools (out of 614). Analysis revealed that the quality, usage and effectiveness of the supplemental materials led to interactive teaching and frequent use of the materials.

AIR. (2011). *Evaluation report on ED-LINKS Teacher Attachment Program.* USAID.

This report evaluates the Teacher Attachment Program (TAP), which was the ED-LINKS initiative to expose mathematics, science and English teachers to teaching and learning approaches in the United States. The report concludes that the activity proved successful in enhancing professional capabilities of TAP participants and helping them to engage their students in the learning processes in the classroom.

AIR. (2011). *Evaluation report on ED-LINKS Teacher Training Program*. USAID.

The findings of the evaluation of the Teacher Training Program, which was conducted in 2010, are presented in this report. The evaluation was conducted through classroom observations and student and head teacher surveys. Results indicated that the project had the potential to increase the number of teachers using effective teaching practices. Students seemed to enjoy learning more, and head teachers thought teachers and students were better motivated after the training program.

AIR. (2012). *ED-LINKS core program final report.* USAID.

This report highlights the activities and achievements of ED-LINKS in improving student learning and teaching quality. The report uses testimonials from beneficiaries as evidence of the positive impact of ED-LINKS on educational delivery at the middle and secondary school levels. Results indicate that 3,497 teachers, in 22 districts of Sindh and Balochistan, were oriented to the National Curriculum 2006 and learned to develop and use assessment material in the classroom. The percentage of ED-LINKS students performing satisfactorily is 9.7% higher than non-ED-LINKS students, while teachers in ED-LINKS schools perform 36.9% better than teachers in non-ED-LINKS schools. Further, 5,769 teachers were trained to deliver improved classroom instruction using science and computer labs, science and math kits and other resources.

Ali, S. (2011). *Policy analysis of education in Sindh*. UNESCO, Pakistan. Retrieved from http://unesco.org.pk/education/documents/situationanalysis/Policy_Analysis_Sindh.pdf.

Ali, S., & Farah, I. (2007). Education in Pakistan (A. Gupta, Ed.). *Schooling around the world: South Asia.* Westport, CT: Greenwood.

Ali, A. (2012). Education- FATA's crying need. FATA Research Center. Retrieved from http://www.frc.com.pk/linkc/articlecont/1

American Institutes for Research, International Development Program. (2012). *ED-LINKS 2011 Impact study: Effects of intervention on student and teacher performance.* USAID.

The study evaluates the impact of ED-LINKS activities: professional development of teachers, strengthening education governance and management, and development of various provincial institutions that support education. Contextual factors such as region and gender were also analyzed. Academic achievement of students and quality of classroom practices of teachers were assessed through a sample of 131 intervention schools and 121 comparison schools selected from Balochistan and Sindh. Results indicated higher outcomes in student learning and teacher instruction by 9.7% and 36.9% respectively. More impact was shown in Balochistan than Sindh, and the intervention in girls' schools was evident only for the subject of science.

American Institute for Research & Management Systems International. Inc (AIR & MSI). (2008). *Response to USAID's issues of concern in program implementation: Baseline study.* USAID.

This report consists of responses to USAID's concerns regarding the ED-LINKS project as well as highlighting best practices of baseline data collection, upcoming activities, lessons learned and measures to improve data collection.

Andrabi, T., Das J., Khwaja, A., Vishwanath, T., & Zajonc. T. (2006). *Pakistan: Learning and educational achievements in Punjab schools (LEAPS): Insights to inform the education policy debate*. The World Bank.

This report examines the LEAPS Surveys carried out in Punjab, Pakistan from 2003 to 2007. LEAPS surveyed 823 government and private schools, and over 100 villages. Although school enrollments have increased 10% from 2001 to 2005, LEAPS found that average learning is poor. The report states that private school students' test scores are between 1.5 and 2.5 years ahead of government school students, and that private schools achieve this at lower cost than government schools and with lower quality teaching inputs. The LEAPS surveys found other strengths and weaknesses of private and government schools, such as the equal geographic distribution of government schools and the unequal distribution of private schools. The authors make several recommendations such as correcting geographic imbalances and creating government-private partnerships.

Arif, G. M. & Farooq, S. (2012). Dynamics of rural poverty in Pakistan: Evidence from three waves of the panel survey. Pakistan Institute of Development Economics.

Aslam, M. (2009). The relative effectiveness of government and private schools in Pakistan: Are girls worse off? *Education Economics, 17*(3), 329–354.

Barber, S. M. (2010). *Education reform in Pakistan: This time it's going to be different.* Brookings Institution.

In this article, the author considers why Pakistan's education system performs so poorly and concludes that there has been a lack of political will to educate the populace over many decades. He provides several examples of good education programs/practices that exist in Pakistan and states that universal education reform would be possible with sustained political will, a narrative of reform, a strategy, and the capacity to implement reform on a large scale; he describes all in detail. In order to create pressure for change, he recommends clear standards for students, processes for monitoring performance, and a major, national public advocacy campaign. Pakistan should generate support for change, such as improving administration and management of schools and providing teacher training.

Bernard, R. (2000). *Social research methods: Qualitative and quantitative approaches.* SAGE Publications.

Cohen, C. (2009). Pakistan 2020: The policy imperatives of Pakistani demographics (H. Solkoski, Ed.). *Pakistan's Nuclear Future: Reining in the Risks*. Strategic Studies Institute.

Das, J., Pandey, P. & Zajonc, T. (2006). *Learning levels and gaps in Pakistan: World Bank Policy Research Paper 4067*. The World Bank.

This paper presents the findings of a survey of primary public and private schools in rural Pakistan. The authors focus on student achievement measured through test scores at the end of grade 3 and state that absolute learning is low compared to curricular standards and international norms. The largest gaps depend on school quality in low income countries: the gap in English test-scores between government and private schools is 12 times the gap between children from rich and poor families. The gap between good and poor government schools is five times the gap between the children with literate and illiterate mothers. Data analysis from public schools of Uttar Pradesh in India indicates a similar structure of educational gaps.

Dawn.com Newspaper. (2012, July 29). Needs-based scholarships delayed. Retrieved from http://dawn.com/2012/07/29/need-based-scholarships-delayed-2/

Din, N.U. (2010). Internal displacement in Pakistan: Contemporary challenges. Human Rights Commission of Pakistan.

ED-LINKS. (2009). *A report on professional development training, English language proficiency and pedagogy training of Master Trainers*. Educational Resource Development Centre, Karachi, Pakistan

The report documents the training practices adopted to help improve English language teaching and analysis of the existing textbooks. Participants of the program felt motivated and confident after the training session. The participants acquired skills in language, grammar and ELT methodology in the first half. The second half included skills in reading, lesson planning, writing and testing. The report also contains pre-and post-test scores of the participants based on their performance during the session activities which provides evidence of the effectiveness and success of the training program.

ED-LINKS. (2009). *A report on English / IT EXCEL camp, Quetta. An English language proficiency course with computer assisted language learning for the students of Balochistan*. Centre of Professional Excellence, Karachi, Pakistan.

This report discusses the English EXCEL Camp for middle and secondary school students of Balochistan that aims to strengthen language and communication skills of students and teachers. The training was carried out at Boys Scouts Headquarter, Quetta for one week and lasted 50 hours, using manuals, language books, dictionary, and five reading books. The program focused on Syntax-Based Learning, Activity-Based Learning and Computer-Assisted Language Learning. Feedback and observations of the sessions allowed improvisations before and during the camp.

ED-LINKS. (2009). *A report on proficiency in English language and communication.* ED-LINKS Professional Development Program. Balochistan and Sindh Regions. Society of Pakistan English Language Teachers

This report portrays details of the English Language Proficiency Program for middle and secondary school teachers including planning and execution, analysis and interpretation of the data, technical evaluation of the objectives and outcomes of the program, and observations from the reviewers, resource persons and participants to describe the impact of the program. Training was conducted in three cities for a period of two weeks and 100 hours of training spread over 12 working days for each participant. The results suggest that this training should be carried out again as a refresher in the future.

ED-LINKS. (2009). *Discovering the joys of math: ED-LINKS EXCEL math camps: Report on EXCEL math camps Sindh.*

This report describes the activities of two Math EXCEL Camps held in Sindh in 2009. 114 students and teachers attended the first camp and 109 participants attended the second camp. Students were divided into groups according to their class levels to learn and improve on math concepts.

ED-LINKS. (2009). *Professional development program: Training of secondary school science teachers of ICT report*. Karachi, Pakistan.

The report documents the training for 131 science teachers (physics, chemistry, biology and general science) for 12 days in Islamabad. The course was conducted by 14 Master Trainers and the results showed significant improvement in the participants' pedagogical practices. It was recommended that the number of participants in each program be restricted to 20 people and all Master Trainers should at least have a master's degree in their subjects. Improvement in the facilities provided to the participants for the duration of training was also suggested.

ED-LINKS. (2009). *Student EXCEL Camp Balochistan (October 12-17, 2009).* Islamabad.

This document reports on the first EXCEL Camp for students held in Balochistan. The objective of the camp was to strengthen students' skills to work in teams, to strengthen their ownership of their own learning, to allow them to participate in a collaborative learning environment and to provide them with opportunities to learn about science, math, English and technology. A total of 167 students (40% female) and 66 teachers (45% female) from 11 districts participated in the camp while another 190 students and 20 teachers from neighboring schools and colleges visited and observed the camp.

ED-LINKS. (2009). *Training of ICT math teachers.* Islamabad, Pakistan: NIBAF.

This report contains information about the execution of the training workshop for math teachers in ICT region of Pakistan. After observing 55 teachers, topics were identified to train teachers to teach geometry through a comprehensive training package. Thirteen teachers from different schools of FDE and 12 teachers from different agencies of FATA were designated to be the Master Trainers for the workshop. The first step was to train these Master Trainers and then they delivered the same training to 122 teachers from 70 target schools of ICT.

ED-LINKS. (2010). *Orientation of Master Trainers in the effective use of math kits (Part A).* Boys Scout Hostel, Quetta, Pakistan.

This report documents the use of math kits and implementation of the training workshop. Participants were introduced to the items of math kits in two groups and trained to effectively use the kits in their classrooms for two days. The training session was especially valuable since teachers were unfamiliar with the usage of the kits.

ED-LINKS. (2010). *Orientation of Master Trainers in the effective use of math kits (Part A).* Elementary College, Hyderabad, Pakistan

This document reports the orientation of teachers to math kits at the provincial and district levels in the Sindh region. It was expected that 2 competent Math teachers from the 11 target ED-LINKS districts would conduct 2 day workshops in their respective districts with the help of ED-LINKS Staff.

ED-LINKS. (2010). *Report on follow-up program with the Resource Persons (RPs) Sindh and Balochistan*. Aga Khan University, Institute for Educational Development and ED-LINKS Project. Pakistan.

The study focuses on the follow-up phase of the Educational Leadership and Management program for Resource Persons in Sindh and Balochistan and highlights some factors that hindered an effective implementation of the program. Throughout different phases of the project, participants and instructors felt that there was a shortage of time and the presence of

disruptive participants, which affected the program negatively. It has also been recommended that training materials be provided in Sindhi or Urdu, that serious participants be selected for the program, that adequate time be allocated, and that deeper linkages and interdependency be developed.

ED-LINKS. (2011) 6-Day EXCEL Camp on discovering the joys of math. Pakistan: USAID.

This report documents the EXCEL Math Camps held to provide opportunities for 25 students from grades 4 to 8 in ICT FDE schools. The objective of the training was to make mathematics interesting for students through activity-based learning approach and practical application of the subject. Follow-up with participants was suggested, and facilitators seemed content with delivering the subject matter in an interactive way.

ED-LINKS. (2011). *A report on teacher development program*. Bureau of Curriculum and Extension Wing Sindh, Jamshoro, Pakistan

The USAID-funded ED-LINKS project conducted the Teachers Development Program in Dadu, Mirpur Khas and Sanghar for a period of 6 days with 42 hours of training for 211 participants through training manuals. The training was carried out to enhance the content knowledge and expertise of teachers in their classrooms, and also to replicate similar training to other teachers for a larger impact to the wider community. Feedback and the reflections of the participants confirmed the need for training in improving teachers' pedagogical practices.

ED-LINKS. (2011). *A report on teacher development program: English, math and science*. Provincial Institute of Teacher Education, Balochistan: USAID.

The report documents the Teacher Development Program in the Districts of Pishin, Sibi and Panjgoor for English, Math and Science teachers through the use of training manuals. 317 teachers were trained for 6 working days (42 hours) to improve their professional and academic capacities. The analysis indicates that the needs of the teachers were identified correctly and the intended objectives were successfully accomplished.

ED-LINKS M&E Unit. (2009). *Certificate in education: Education leadership and management. For school head teachers and first assistants in Sindh and Balochistan: Cycles I-III.* Islamabad.

This report examines the effectiveness of a certificate course in Educational Leadership and Management. The course was presented by Aga Khan University for the ED-LINKS project and intended to increase academic supervisors' and head teachers' abilities to support teachers in classrooms in targeted schools in Sindh and Balochistan. The report presents information from baseline forms, focus group discussions, observation of course sessions, and post-training questionnaires. Some conclusions from the evaluation included: participants (1) appreciated the opportunity to attend training; (2) had not been exposed to capacity development before; (3) thought the length of the course was too short given that it covered extensive, new information; and (4) felt the junior faculty members who presented the information did not have adequate experience to address all participants' expectations.

ED-LINKS M&E Unit. (2009). *Master Trainers training workshop on English pedagogy and proficiency: A report on training evaluation.* Islamabad.

This paper evaluates the outcomes of the Master Training Program in English Pedagogy and Proficiency and gauges its effectiveness. The English Training program was designed to provide content knowledge and pedagogical skills to participants so that they could become better teachers of English. Forty-six Master Trainers were trained in the first phase of the program; then they replicated the training for 175 teachers. The evaluation of the first phase included observation of training sessions, completion of questionnaires by participants, and pre- and post-training data collection about participant expectations and outcomes of the program. While all 46 trainers graduated the course and appreciated the training, they felt the course was too long and intensive, and less than half felt prepared to implement the training for other teachers.

ED-LINKS. (2011). *A report on teacher development program.* Provincial Institute of Teacher Education, Sindh. Nawabshah. District Shaheed Banzirabad, Pakistan.

Teacher Development Program was initiated to strengthen the academic and professional capacities of 75 English, Math and Science teachers in the districts of Kashore, Jacobabad and Shikarpur for a time duration of 42 hours spread over six working days for each participant, The training was conducted using a training manual. Evaluations indicate that participants were able to change their instructional methodology after understanding the training content.

ESRA- Pakistan, Professional Development. (2005). *Technical report on teacher behavior and student achievement. Sindh cycle 1*. Evaluation Unit, Professional Development, Education Sector Reform Assessment Project in Pakistan.

This report discusses the process by which quantitative information on indicators has been collected and analyzed to evaluate the baseline and post-test measures in Sindh regarding teacher behavior and student achievement. 300 schools and 580 teachers were designated as the intervention group while 150 schools and 20 teachers were the control group. Results suggest that teachers performed better after the training and the TQI was a reliable instrument to assess teacher behavior. Students also performed better in the post-test than the pretest, but the instruments to measure student performance need to be revised; they were not as reliable and had low-point biserials.

ESRA- Pakistan, Professional Development. (2006). *Technical report on teacher behavior and student achievement. Balochistan Cycle* 1. Education Sector Reform Assessment Project in Pakistan.

This report examines the effects of teacher training in Sindh and Balochistan. The objectives were to measure whether teacher behavior changed as a result of in-service training and to examine whether the students taught by those teachers showed an increase in their academic achievement. Teacher behavior was measured using a 9-item Teacher Quality Index (TQI) and student achievement was measured with a multiple choice test of 25 questions given to randomly-selected fourth graders. The analysis showed a significantly significant difference in teacher behavior from pre-test to post-test. Student achievement in mathematics was not significant when compared to the control group, but analysis showed a significant difference in achievement in Urdu. The authors suggest that the instruments used in testing were not reliable, and other factors interfered; for instance, half of the pre-test schools were not able to participate in the post-test due to teacher strikes.

Gazdar. H. (1999). Review of Pakistan poverty data. *Sustainable Development Policy Institute.*

Gazdar, H. (2008). The transition to mass literacy: Comparative insights from Sweden and Pakistan. *Global perspectives on gender equality: Reversing the gaze* (N. Kabeer, A. Stark & E. Magus, Eds.). Routledge.

Grare, F. (2007). The landlord, the Mollah, and the military: The education issue in Pakistan [Brief Number 8]. Pakistan Security Research Unit (PSRU). University of Bradford.

Government of Sindh (2012). *Secondary education*. Retrieved from http://www.rsu-sindh.gov.pk/semis/educationprofile20011-12.html.

Hirashima, S. (2009). Growth-poverty linkage and income-asset relation in regional disparity: Evidence from Pakistan and India. *The Pakistan Development Review.*

Kazmi, S. W. (2005). Role of education in globalization: A case for Pakistan. *SAARC Journal of Human Resource Development*, 90-107.

Khoso, N. A.; Jamali, M. Y. (2010). *Teacher development program mathematics under technical support from ED-LINKS. Analysis of pre-test and post-test.* Pakistan

> The report analyzes items from math tests conducted to assess the Teacher Development Program. Results indicate that training led to the decrease in the number of un-attempted questions and incorrect responses by 10% and 1% respectively. The number of correct responses increased only by 1% and this low improvement could be due to the language barrier as teachers are more comfortable in Sindhi than Urdu.

Kirk, J. (2003). *Impossible fictions? Reflexivity as methodology for studying women teachers' lives in development contexts*. Unpublished Doctoral Thesis. McGill University.

Kraft, R., Akhter, P., Tahir, A. Q. & Samson, E. (2008). *Evaluation of the Education Sector Reform Assistance (ESRA) program.* USAID & Academy for Educational Development (AED).

> This report provides information on the impact, sustainability, coherence, efficiency, consonance, feasibility, and effectiveness of the ESRA project in Pakistan ($83 million). The evaluation document is a result of a desk review of related documents, interviews, surveys, focus groups and site visits. One of the key conclusions of the evaluation team is they were unable to confirm the extent of benefits that the country gained from this project after visiting the site. ESRA's sustainability and long term success is hindered by the pressure to add new components to the program. The authors further conclude that due to irregular budgeting by the provincial and the district governments, limited assistance from international community, and issues related to infrastructure, ESRA policy development, EMIS, literacy, capacity building and other activities are of little value. The authors also give firm recommendations for the improvement of the program including policy enforcement on the fundamentals, short-term participant training programs, formation of Pakistani Council for Supervision and Curriculum, and exchange visits to model settings within Pakistan.

Kronstadt, A. (2004). Education reform in Pakistan. *CRS Report for Congress.* The Library of Congress.

Lall, M. (2010). Educate to hate: The use of education in the creation of antagonistic national identities in India and Pakistan. *Compare: A Journal of Comparative and International Education, 38*(1), 103-119.

Lamb, R. (2011). Governance and militancy in Afghanistan and Pakistan. Center for Strategic and International Studies.

Lehri, Saira. (2011). ED-LINKS Balochistan region: 3 days mobile computer lab teachers orientation. Balochistan, Pakistan: USAID.

The report contains details of the 3-day training workshops to facilitate 29 teachers in their use of mobile computer labs. They were from 15 schools who were participating in student exchange programs. The training was conducted in collaboration with Viper Technologies and Intel, focusing on computer basics and use of internet to enhance teaching practices in the classroom. The participants recommended that such training should last at least one week.

Lehri, Saira. (2011). *ED-LINKS Balochistan region: 9 days IT skill. Development training of the subject teachers hosting desk-top computer labs of 4 summer zone districts at Balochistan Region.* Pakistan: USAID.

This report documents the 9-day training conducted at Boys' Scouts Headquarter Balochistan Quetta in order to train 10 teachers to operate, learn and utilize desktop computer labs established by ED-LINKS in the area. Participants learned to apply word processing and multimedia to English Language, Science and Math teaching.

Lingard, B. & Ali, S. (2009). Contextualizing education in Pakistan, a white paper: Global/national articulations in education policy. *Globalisation, Societies, and Education, 7*(3), 237-256.

M&E Balochistan. (2008). *Baseline survey report: Balochistan: Findings and recommendations*. Balochistan.

The report presents data collected from ED-LINKS target schools in Balochistan to establish a baseline for effective evaluation of the program activities over the project's life. The records, collected from 155 boys' schools, 78 girls' schools and 34 co-ed schools in 11 targeted districts of Balochistan, focus on physical/infrastructure facilities available in each school, student learning environment, governance matters, head teachers and teacher capacity and training. The creation of scorecards and rankings summarize the districts, tehsils and schools that require immediate attention. This document reports that Khuzdar district had the best score but still needed improvement and recommended a strong focus on middle schools, which were in the worst conditions. The survey report contains a list of schools in very poor conditions that require immediate intervention in terms of administrative shortcomings, student achievement, student-teacher ratio, infrastructure capability, and library facilities.

M&E Balochistan. (2009). Report on 10 week training on leadership and management of head and Deputy Head Teachers in Five Summer Zone Districts of Balochistan. Islamabad: ED-LINKS.

This report presents an assessment of the Leadership and Management Training and its usefulness to Head/Deputy Head Teachers (academic supervisors) in 5 summer districts in Balochistan. Participants reported satisfaction with many aspects of the training, which trained supervisors to create school development plans and provide academic leadership and professional support to teachers. However, participants felt that no follow-up support was provided after the training sessions, computer education training was too short, and junior instructors lacked sufficient knowledge to deliver courses. Data from individual and group discussions with head and deputy head teachers were compared against questionnaires from subject teachers, who were asked whether they received improved classroom support and were more involved in school planning and budgeting after their supervisors' training.

M&E FATA. (2008). *Baseline survey report: FATA: Findings and recommendations*. FATA: ED-LINKS.

This report presents baseline conditions in the ED-LINKS targeted schools in FATA based on data collected from 593 schools out of the assigned 727 schools by Initiative for Development and Empowerment Axis (IDEA), Community Appraisal and Motivation Program (CAMP), and North West Development Associates (NWDA). The report summarizes the districts, tehsils, and schools that require immediate attention on the basis of scorecards and rankings. The findings indicate that girls' schools in most districts are in worse condition than boys' schools. Results conclude that schools in FR Lakki, FR Tank and S.W Agency were the worst and FR Kohat had the best score, even though it also needed improvement. Analysis also revealed schools in different tehsils and districts which needed improvement in terms of infrastructure, administrative capacities, library facilities, student-teacher ratio, and classroom density.

M&E ICT. (2008). *Baseline survey report: ICT: Findings and recommendations.* Islamabad: ED-LINKS.

This report establishes a baseline for the situations in 70 ED-LINKS targeted schools in Islamabad Capital Territory. Analysis indicates that schools in ICT are in better condition than the schools in Sindh, Balochistan and FATA. Findings also suggest that the girls' schools did better than boys' schools, and English medium schools performed better than Urdu medium schools. Nilore and Sihala districts are in the worst condition and all the tehsils have poor library development. The report contains a list of schools that require improvement in terms of infrastructure, library, and administrative capacities. The recorded data also indicated the presence of three schools which have no students at all.

M&E Sindh. (2008). *Baseline survey report: Sindh: Findings and recommendations*. Sindh: ED-LINKS.

The report provides information on baseline data collected from ED-LINKS targeted schools in Sindh from 11 project-supported districts and 330 schools in the province. Findings indicate that Sukkur has the best overall score while Kashmore and Jamshoro had the lowest. Middle schools are in worse condition than secondary and higher secondary schools. The report gives a list of school performance in terms of their academic conditions, infrastructure, library development, student-teacher ratio, classroom density, administrative capabilities, and student achievement.

M&E Sindh (2009) *Report on five day science EXCEL Camps, public school Sukkur and PITE Shaheed Benazir Abad*. Sindh, Pakistan: ED-LINKS.

The study focuses on selected students from grade 6 to 10 and the academic achievements of students in the subject of Science. Recommendations include using working models and classrooms efficiently along with field trips to science museums and community collaboration.

Malik, A. (2011). *Political survival in Pakistan: Beyond ideology*. New York, NY: Routledge

Malik, Z. I. & Irfan, Y. (2011*) Impact study: Effects of ED-LINKS supported interventions on EMIS in selected areas of Pakistan [AEPAM Publication No. 242].* Islamabad: Academy of Educational Planning and Management (AEPAM).

This study evaluates the impact of EMIS, focusing on interventions supported by the ED-LINKS project and, from lessons learned, gives recommendations for future strategies. Based on a survey using quantitative and qualitative data, this report compares EMIS before and after ED-LINKS interventions. Key findings include the provision of computers to national, provincial and district EMIS cells, and improvement in the efficiency, reliability, effectiveness, and usability with

the help of orientation staff. The report notes that there has been an increase in the number of districts using computer networks from 3.7% in 2008 to 44% in 2011. Also, monitoring mechanisms have improved, and there are shorter intervals between monitoring efforts. Responses indicated that that a larger number of districts have implemented data verification and validation support mechanisms, due to ED-LINKS.

Ministry of Education. (2006). *National assessment report 2005.* Government of Pakistan, Provincial Education Assessment Centres, Islamabad, Pakistan.

This report contains information on assessments for mathematics and language conducted in 784 schools and taken by 11,977 students in 2005. The assessment consists of achievement tests and student background questionnaires. The report also identifies constraints and gives recommendations for sample selection, assessment instruments, logistics, management, etc.

Ministry of Education. (2008). *National EMIS survey: Findings and recommendations, a baseline for strategic development.* Islamabad. Pakistan: AEPAM.

The National EMIS Survey found that that EMIS cells lack necessary policies, resources, and training to perform the tasks of a truly functional organization. It was also observed that most districts did not provide the budget and resources to support the organization. This report was prepared after interviewing 136 people of the 141 district EMIS cells and 8 provincial/area offices. The report gives recommendations for policies, training and resources that will improve the standards, communication and collaboration of the EMIS organizations in Pakistan.

Ministry of Education. (2009, August). *National education policy 2009.* Government of Pakistan.

Mitchell, J. (2008). How information-based planning can flourish where traditional politics reign: An example from Pakistan. *Journal of Education for International Development, 3*(2), 1-13.

Mustafa, I. (2010). *Close-out report on intervention in ED-LINKS Project (Nov 2007 – 2010).* Pakistan: Aga Khan University Examination Board.

The report contains information on the middle school English, Mathematics and Science teachers from target schools in 22 districts who were oriented on effective classroom assessment and the use of standards of National Curriculum 2006. A study of a sample of 27 schools shows an improvement from the year 2008 to 2010 as a result of project interventions. It also reports assessment material used in 341 classrooms, creation of middle school promotion examinations in 2010 in 14 district education offices, and initiation of development of standards-referenced middle school examinations for 2011 by 15 district education offices. The author further discusses the training provided by AKU-EB to build the capacity of BISE to shift to standards-referenced examinations.

Nawaz, S. (2009). FATA--a most dangerous place: Meeting the challenge of militancy and terror in the Federally Administered Tribal Areas of Pakistan. Center for Strategic and International Studies.

NEMIS (National Education Management Information System). (2008). *Pakistan education statistics: 2007-2008.* Islamabad, Pakistan: AEPAM.

This report summarizes education statistics for Pakistan in 2007-2008 and compares the public and private education sectors. Then the document reports the following information for the

public sector only, for each region: number of institutions, enrollment, number of teachers, physical facilities, number of repeating students and classroom availability.

NEMIS. (2009). *Pakistan education statistics: 2008-2009.* Islamabad, Pakistan: AEPAM.

This report summarizes education statistics and presents data for each region for 2008-2009 in the same format as NEMIS, 2008.

NEMIS. (2010). *Pakistan education statistics: 2009-2010.* Islamabad, Pakistan: AEPAM.

This report provides education statistics in a variety of tables on four main topics for 2009-2010: 1) institutions, 2) enrollment, 3) teachers and 4) physical facilities in the public sector.

NEMIS. (2011). *Pakistan education statistics: 2010-2011.* Islamabad, Pakistan: AEPAM.

This report analyzes trends and the effectiveness of the Pakistani education sector through measures like the Gross Enrollment Ratio, Gender Parity Index and percentage of female enrollment. Then the document presents education statistics from Pakistan from 2007-2008, including information about institutions, enrollment, teachers and physical facilities.

NEMIS-AEPAM. (2011). District education profile 2010-11. Islamabad: Government of Pakistan.

Pakistan Bureau of Statistics. *Pakistan social and living standards measurement [2007 and 2010 eds.]*. Retrieved from http://www.pbs.gov.pk/content/pakistan-social-and-living-standards-measurement.

Pokkinghorne, D.E. (1988). *Narrative knowing and the human sciences*. Albany, NY: SUNY Press.

Rarieya, J. (2007). Women in leadership: Negotiating the labyrinth. (R. Qureshi & J. Rarieya, Eds.) *Gender & Education in Pakistan.* Oxford University Press.

Retallick, J. (2009). Successful schools: What can we learn from them? *Schools and Schooling Practices in Pakistan: Lessons for Policy and Practice.* (R. Qureshi & F. Shamim, Eds.). Oxford University Press.

Saeed, M. (2007). Education system of Pakistan and the UK: Comparisons in context to inter-provincial and inter-countries reflections. *Bulletin of Education & Research, 29*(2), 43-57.

Saldana, J. (2009). The coding manual for qualitative researchers. London: SAGE Publications. London: SAGE Publications.

Sami, M., Kuchlak, A. K., Qadeer, G., Gul, M., Javeed, K. & Qureshi, W. (2010) Teacher development program mathematics 2010. Under Technical and Financial Support from ED-LINKS, Pakistan.

The report briefly describes the proceedings of the Teacher Development Program giving a comparison of pre- and post-test scores. 18 resource persons of mathematics trained 136 secondary and middle school math teachers in 11 districts of Balochistan at 9 different venues. Analysis indicates an increase in the number of correct responses by6 26% while the number of incorrect responses and unanswered questions decreased by 10% and 16% respectively.

Sayed, T. (2006, September). *Secondary education in Pakistan: The key issues, challenges, and reform framework.* Paper presented at Regional Conference on Education, Training, and Knowledge Economy in South Asia, New Dehli. Retrieved from http://info.worldbank.org/etools/docs/library/235788/2Tahseen%20Sayed.pdf.

Shah, D. (2003). *Decentralization in the education system of Pakistan: Policies and strategies*. Paper presented at UNESCO Seminar on Decentralization Policies and Strategies in Education, Buenos Aires, Argentina.

Shah, D. (2009). Monitoring the quality of secondary education in the context of decentralization in Pakistan. *Bulletin of Education and Research, 3*(1), 1-25.

Shaheed, F., and K. Mumtaz. (1993). Women's education in Pakistan.

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