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TECHNOLOGY FOR IMPROVED LEARNING OUTCOMES (TILO)

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EXECUTIVE SUMMARY

Description

Over the past decade, the Ministry of Education (MOE) in Egypt has focused its work on raising the level of teaching and learning in its schools and increasing the number of students enrolled, especially girls and particularly in primary education. USAID has reinforced this focus with funding for projects that support capacity building, reform and change management, school building and increased enrollment, among other initiatives. Throughout, MOE has worked collaboratively with the Ministry of Communication and Information Technology (MCIT) to explore how technology might support education reform work.

With input and support from many stakeholders, the MOE created the “Ministry of Education 5-Year Strategic Plan for 2007-2012”¹, outlining areas of focus and stating goals as well as strategies for each. The “Technology for Improved Learning Outcomes” (TILO) project was created, funded and implemented to support ten of the twelve focus areas, with a primary focus on #1 “Comprehensive (Curriculum and) Instructional Technology Reform.” The program was designed to enhance the quality of teaching, learning and decentralized school management through the effective use of technology in schools.

TILO was funded by the United States Agency for International Development (USAID) as a Task Order under the Assistance to Basic Education-Basic Education (ABE-BE) IQC. It was a six-year project implemented in nine governorates in Egypt from September 2007-September 2013, with a total ceiling of \$31.2 million. The project was managed by Creative Associates International (Creative) and was implemented in collaboration with partners Keys to Effective Learning, PalTech and Seward Inc.

The designers and implementers of TILO were aware of two major tenets. First, that any reform effort must ultimately aim to increase learning outcomes, and secondly, that technology could only improve learning outcomes with a number of supporting elements in place. Many education technology efforts in Egypt and elsewhere had not been particularly successful increasing learning outcomes because they were based on the thinking of “add computers and stir” without considering what else was needed for the computers to make a difference in student learning.

TILO knew that for technology to make a difference in learning outcomes, all stakeholders--teachers, school administrators, boards of trustees, community members, supervisors at the Idara level, MOE at the Muderiya level, Subject Matter Specialists (SMEs) at central MOE, Technology Development Center (TDC) staff at central and Muderiya levels--must be well versed in what technology was useful, how it connected to Egyptian curriculum and how it could increase learning outcomes. All must be ready to embrace the changes that technology would bring to their classrooms, schools, Idaras and governorates. Appropriate technology must be readily available to students and teachers, and a decentralized management system for technology must be in place.

¹ See Part I, Context and Rationale for a listing of all twelve areas of focus.

TILO enlisted the assistance of Muderiyas and governorates to select schools that were already planning for reform and change, would commit to training their administrators and teachers and wanted to become TILO “School Based Reform” (SBR) schools. TILO used a demand-driven selection process in which primary schools applied to TILO, stating desire and commitment.

TILO originally committed to work in seven governorates with 192 primary schools to become TILO “School Based Reform (SBR)” schools and 85 preparatory schools to become “TILO Smart Schools (TSS).” By request from MOE and TILO primary-school communities and Undersecretaries, TILO later expanded its scope to include 127 prep schools to become “TILO Prep Schools,” increasing the total number of TILO schools receiving interventions to 404 schools.

An extensive program of training, including follow-up and support, was designed and delivered to all stakeholders, beginning with training for teachers in “Effective Teaching Methods.” The training plan was purposely flexible to enable units to be adjusted and used separately as needed.

Planning for various technology models for schools changed from the original plan to make technology more readily available to teachers and learners and to better suit school situations. Technology packages were provided to 404 primary and prep schools with a total of 3,628 desktop computers, 1,195 laptop computers, 982 technology suitcases with laptops and projection systems and 1,527 Intel Classmate PCs.

From the onset of digital resource development, TILO made the decision not to create its own educational software programs but to find and test existing and, for the most part, free programs appropriate for classroom use in Egypt. Choices were made based on their ease of learning and use and connection to the Egyptian curriculum in the subjects of Arabic, English, math, science and social studies. The collection of programs and supporting documentation were subsequently published and distributed on DVDs with a user-friendly interface designed to help educators access the programs and lessons most appropriate for them.

In order to further support project objectives, TILO implemented a strategy to collaborate with private industries in Egypt to create partnerships. TILO created Public Private Partnerships (PPP) with Microsoft for ICT training help, with Intel for training and to use and assess their Classmate PCs, with IBM to integrate their Reading Companion solution and for 74 Kidsmart units, with Houghton Mifflin Harcourt for their Kidsmart Young Explorer software series, with OrchTech and Crocodile for a generous discount and lifetime licensing for science and math software, with Exxon for a donation of 218 laptops for Idara members for monitoring and follow-up, with HSBC bank and RWE, a German oil and gas company, for grants to provide full technology packages with training to five schools in Cairo. One of the most productive partnerships was created with the Coca Cola Africa Foundation and the Discovery Channel Global Education Partnership to distribute video segments in schools and help teachers connect them to their curriculum and use them in lessons, as well as to encourage community participation in solving school and community problems.

Because building capacity and ensuring sustainability was a major commitment of TILO, necessary planning tools and training were given to MOE leadership, teachers, ICT trainers and Supervisory Trainers as well as to supporting members of TILO school communities. TILO developed plans and training to help 57 schools reach out to community members for support. TILO teams developed a detailed process for their work with and training for stakeholders to ensure sustainability of TILO and other projects.

Part of ensuring sustainability was TILO's transferring experiences and lesson learned to the MOE by meeting regularly with governors, undersecretaries and the directors of Technology Development Centers (TDC) and sharing final school reports. The TILO team designed, facilitated and disseminated findings, lessons learned and recommendations. TILO developed a set of comprehensive management guidelines and training called "School Technology Advanced Management Plan" (STAMP) to help schools understand their needs to support and maintain their technology, develop and execute their plans.

The TILO project included an extensive plan for "Monitoring and Evaluation" (M&E) to measure and report project outputs and impact and to provide feedback over the course of the project to inform planning and management. The Monitoring and Evaluation team worked closely with the other TILO team members to be sure that assessment targeted stated goals and outcomes and that data gathered was useful during the project and in the final assessment.

Results and Accomplishments

The TILO project's interventions resulted in significant accomplishments over the six years of its implementation. Several major events in Egypt challenged the project's operations. The greatest challenge came during and after the revolution in 2011, when many schools were closed and teachers unavailable for training. As a result of the revolution, the Minister of Education was replaced as well as other MOE staff, both centrally and in Muderiyas and Idaras, which necessitated a new round of relationship building, orientations and training. Similar challenges occurred as a result of the conflict in March 2013 and the weeks following the removal of Mohammed Morsi from the presidency. The project team was constrained by technical, logistical and security challenges. Despite all these obstacles, the TILO project was overall able to continue its implementation, primarily due to its decentralized operational structure within the governorates. This allowed Team Leaders to continue working with Muderiya and Idara officials and with schools to continue with trainings and activities. The strong support from the management team in Cairo also ensured that activities were carefully planned and adjusted as needed to accommodate the fluctuating situation in the country.

Component I: Improve the Quality of Teaching, Learning and IT Management in Schools

School Selection

A major contributor to the success of the TILO project was the process used to select primary schools. The use of a demand-driven selection process for School Based Reform (SBR) schools resulted in ownership, involvement and support of all stakeholders from the beginning. The schools' desire to participate, their pledge to fulfill the extensive training components and their ownership over the choice to undergo reform ensured that they were able to reach their highest potential by way of the improvement efforts. As a result of their commitment, teachers, administrators and Idara supervisors enthusiastically embraced TILO interventions.

TILO worked with the national and governorate level Technology Development Centers (TDC) to identify and visit 100 experimental schools, 85 of which were chosen to become "TILO Smart

Schools” (TSS). Because this selection process was neither demand-driven nor closely criteria-driven, some schools were not ready for the changes that becoming a TILO school would bring. Some did not have a physical space prepared nor teachers selected for training.

During the project’s extension period, TILO took on the task of working in 127 prep schools, using the TILO approach to transform them into TILP Prep schools. This approach specifically included building the capacity at the Muderiya and Idara levels to provide training to teachers. As a result, these Idaras are now ready to continue to expand the coverage of training to other schools after the end of the TILO project.

Training, Follow-Up and Support

A total of 22,390 Egyptian teachers and supervisors received training in Effective Teaching Methods. Out of those, 8,509 also received training in technology integration in 393 training programs. 1,908 teachers were designated as Master Teachers. 390 MOE and school administrators were trained in Effective Management of Technology Use in Schools.

A total of 921 training programs with 22 types of training, including follow-up and support, were designed and delivered by training teams to multiple stakeholders. The flexible training plan enabled units to be adjusted and used separately as needed. Modules were developed and selected based on the needs of each group. 1,000 supervisors received capacity-building training.

Most training sessions were conducted on site, in schools and Muderiya centers. Conducting training in schools close to teachers’ classrooms established a culture of professional development within the school. All Master Trainers were former teachers with native Arabic language skills.

Technology Model

The TILO technology model was based on the principle that computers should be more accessible to teachers and students, beyond a computer lab. It took some time initially for TILO schools to accept this principle but they were convinced and eagerly participated in the interventions. The TILO Technology Model is sustainable, replicable in other schools and does not require advanced or network knowledge to operate efficiently.

A form was developed and distributed to TILO schools to report and track their technology use. Shared with administrators, it clarified and documented the strengths and weaknesses of the school’s technology support plan. All equipment installed in TILO schools was inventoried and transferred to the MOE at the governorate level at the end of the project.

Out of 277 SBR Primary and TSS schools, 239 were connected to the internet, 208 via ADSL and 31 by 3G.

The simple and efficient TILO Technology Model provided:

- 3,628 desktop computers
- 1,195 Laptop computers
- 982 technology suitcases
- 1,527 Intel classmate PCs

Digital Resources Development

TILO developed a set of criteria to select the appropriate software programs for schools. Both the criteria and the identified educational software programs (Digital Resources) were reviewed and approved by Subject Area Specialists at the central MOE. As a result of their review, the Subject Area Specialists along with other educators from the central MOE requested that they be part of TILO training sessions. Their inclusion resulted in building knowledge and enthusiasm about the TILO model from the outset.

TILO created a DVD containing 60 educational software programs that were identified per TILO's criteria, along with introductory descriptions and a sample lesson plan for each. The DVD was designed with a bilingual interface. The DVD was labeled "ToBe TILO", and provided full public rights for free duplication, distribution and installation of the resources. The digital resource collection was installed in over 10,000 computers at target schools. Teachers in at least 400 TILO schools were introduced to the appropriate technologies that can support and enhance learning in their classrooms. 1,500 additional DVDs were distributed to schools upon their request. TILO established an Egyptian Teachers Network to promote the exchange of ideas, lesson plans and experiences between teachers. By the end of the TILO project, Microsoft reported that 25,000 Egyptian teachers had joined their Teachers Network, and 20,000 were active users. Ownership and responsibility for sustaining TILO was officially assumed by the MOE and their Technology Development Centers.

Component II: Public Private Partnerships

TILO created a number of symbiotic partnerships resulting in unanticipated levels of support for student learning. Microsoft and Intel trained and certified IT staff in the governorate Technology Development Centers, who trained teachers in their governorates. Intel piloted their Classmate PCs with TILO and donated 1,527 Classmate PCs to TILO schools. IBM piloted and implemented their web-based phonetic program Reading Companion in TILO schools. As a result, Reading Companion will now be deployed in schools nationwide. Through a partnership with Houghton Mifflin Harcourt, Egypt now has lifetime licenses for Kidsmart Young Explorer software in all TILO primary schools. Crocodile, through OrchTech, reduced the price of its excellent science and math software enough to enable TILO to purchase it for its schools. Exxon donated 218 laptops to Idara members. RWE, a German Oil and Gas company, and HSBC Bank donated full technology packages and training for an additional 5 schools in Cairo.

One of the most effective and successful partnership into which TILO entered was with the Coca Cola Africa Foundation and the Discovery Channel Global Education Partnership (DCGEP) through which educational video segments were distributed to schools along with training for teachers in how to use them effectively.

Component III: Building Capacity for Effective Management of Technology

The TILO training team succeeded in getting all TILO training manuals accredited by the Professional Academy of Teachers (PAT). The TILO training manuals can now be used in teacher professional development throughout Egypt. With the support of TILO and USAID, interested TILO trainers became accredited by the PAT and can now be hired by the MOE to conduct training on TILO modules. As of August 2013, 162 TILO teachers have been accredited.

A tracking and reporting tool was developed and distributed to TILO schools to facilitate the management of technology use. Through this tool, administrators could clearly identify the strengths and areas of improvement in their school’s technology support plan.

Capacity building through community outreach was also a large part of the TILO project. As part of its School Based Reform (SBR) process, the MOE had given the schools the responsibility for managing improvements to their schools, improving student learning, managing resources and leading school change. The schools have found that their needs were too large to handle alone. Through developing community participation and cooperation, schools were able to involve their communities in identifying and solving school-based problems. TILO’s community outreach program included training as well as working with schools to plan and implement community outreach projects. Over the course of the program, TILO successfully implemented community outreach projects with 57 schools.

Component IV: Monitoring and Evaluation (M&E)

The Monitoring and Evaluation (M&E) team worked closely with all the TILO staff to establish processes for determining progress on desired results, both final and intermediate. Because there were a number of changes in the country during the project as well as changes to the project scope of work, feedback from the Monitoring and Evaluation team became invaluable when planning necessary adjustments within the project plan and implementation.

Many tools were either created or adjusted by the Monitoring and Evaluation team, but one instrument and one process proved to be so successful in assessing teaching and learning as well as technology use in the classrooms that the MOE has now adopted them to be applied country-wide:

- The USAID-created “Standards-Based Classroom Observation Protocol for Egypt” (SCOPE), which measures changes in classroom practice, was edited to add assessment of teachers’ integration of technology in classes. MOE now uses this protocol in its own assessment of classroom practices.
- The process called the “Student Grades Study” was created to gather and compare data about student progress over a period of years. This process of comparing student grades is now used by TILO and some non-TILO schools to assess their progress with reform.

The main results of the M&E activities are detailed in the Impact section below.

Impact

TILO aimed to impact two areas: “Improved student learning” and “sustainable decentralized management of use of technology for teaching and learning at the school and Idara levels.”

Impact Result 1: Improved Student Learning Two variables - “performance over time” and “training” were examined in detail. The performance over time variable was analyzed annually from the baseline until one year *after* the end of interventions in TILO schools (referred to as the “sustainability year.”) The training variable was analyzed at the baseline and by looking at the

average mid-year marks of students during the period of intervention. Two categories of TILO teachers were analyzed: those taught by TILO Trained Teachers (who were directly trained by TILO Master Trainers) and those taught by TILO Locally Trained Teachers (teachers at TILO schools who were trained by the TILO Trained Teachers). The major findings are as follows:

- ***Performance Over Time:*** The academic performance of TILO students in both SBR Primary schools and TSS Prep schools showed significant improvement over the course of the intervention as measured by their average mid-year marks. Even the results of the measurement conducted at the “sustainability year” showed improvement compared to the baseline. These findings indicate that the overall model and approach of the TILO interventions was sound and has potential for sustainability.
- ***Training:*** In SBR Primary schools and TSS Prep schools, students trained both by “TILO Trained Teachers²” and by “TILO Locally Trained teachers³” improved significantly in their average mid-year marks compared to the baseline. In fact, in SBR Primary schools, the average mid-year marks of students of TILO Locally Trained teachers were even higher than those taught by TILO Trained teachers. As experts in their specific subject areas, TILO Trained teachers could provide more targeted support to their colleagues than TILO Master Trainers were able to provide to them. This suggests that the TILO’s cascade model for training (training some teachers directly and having those teachers train others in their school) worked well.

Impact Result 2: Sustainable Decentralized Management of Use of Technology for Teaching/Learning at the School and Idara Levels

This result evaluated the use of technology for teaching and learning as well as decision-making, and the sustainable use of resources for maintaining and supporting education technology in schools. The main findings below relate to both SBR Primary and SBR Prep schools:

- ***Use of technology at school and Idara levels:*** Both schools and Idaras significantly increased their use of technology for making data-driven decisions. Schools reported a more effective use of technology over the course of the TILO interventions, and were satisfied with the support received from their school management, Idaras and Muderiyas. A main reason cited was the inclusion of school managers, Idara and Muderiya supervisors in the TILO trainings, which allowed them to better cater to the needs of the schools. Teachers reported both using the resources they were provided and taking the initiative to provide e-resources themselves. This is a good indicator of teachers’ engagement and interest in using technology in their classrooms and a positive sign for their sustaining these practices after the end of the project.
- ***Perceptions of technology:*** Both teachers’ and students’ perceptions of technology use in the classroom improved significantly over the TILO project. Teachers reported greater levels of

² TILO teachers trained by TILO Master Trainers

³ TILO teachers trained by TILO Trained Teachers

confidence and competence in using technology and stated that using technology had changed their role to facilitators rather than lecturers. Students commented that their teachers' use of technology helped them to feel freer to work better both independently and in teams. Teachers, on their part, reported that students were more engaged, attentive and collaborative. These findings suggest that the technology provided through the TILO approach was successful in engaging students' attention and desire to remain in school.

- ***Integrating technology into the teaching-learning process:*** While technology was certainly useful to teachers in their teaching, it was clear from the results that the teachers were able to use the technology in appropriate ways because they had first been trained on *how to teach well*. In the TILO model, technology was not considered an add-on but was consciously integrated into the curriculum at different grade levels. It was also included only after teachers had been trained on basic pedagogical techniques. Teachers reported very positively about the trainings they received on topics such as student-centered teaching, classroom management, etc. They reported that they adopted active learning, creative thinking, and problem solving strategies in the classroom when working with technology. This finding suggests the soundness of the TILO model in terms of using technology as a tool to enhance learning, rather than an end in itself.
- ***Sustainable management of resources:*** While TILO was successful in increasing the effective use of technology at the school level, control of financial resources was not decentralized and financial allocation of technology resources was conducted primarily at the central level. This will make it difficult for Idaras and schools to plan financially for the proper maintenance and support of the technology in their jurisdictions.
- ***Phasing of interventions in cohorts:*** The M&E results showed that Cohort 2 schools performed better than Cohort 1 and showed greater improvement in all categories evaluated through the M&E process. This corroborates the concept of working in phases – starting with a pilot, making necessary adjustments, and then scaling out to the remaining target areas. After piloting in Cohort 1 schools, the TILO team made adjustments to both the technology and training models, and the findings show that these adjustments made a difference not just to the smooth implementation of interventions in Cohort 2 but also to the results of these interventions.

Conclusions and Recommendations

Overall Conclusion

The findings of the M&E measurements indicate that TILO has successfully achieved almost all its intended results at the outputs, outcomes and impact levels. The project has shown that technology must not be seen as an add-on or a goal in itself. It should not supersede pedagogy in classes or be introduced into schools as a separate product. Rather, it should be seen as a tool to be integrated into all aspects of the system to enhance the teaching and learning process. Similarly, in order to make sure that an approach is accepted and understood by all stakeholders, and institutionalized within the system, it is essential to involve not just teachers but management staff at all levels (school, Idara, Muderiya and the central MOE). If the buy-in of all

stakeholders is not ensured early in the process, the interventions will not survive the duration of the program. TILO has produced a model that shows positive signs of being both sustainable and replicable within the Egyptian education system. The fact that, by the end of the project in September 2013, the MOE had begun to expand the TILO model by itself in 288 non-TILO schools (40 in Fayoum, 213 in Minya, 14 in Beni Suef and 21 in Alexandria) is testament to its success.

Main Recommendations

- Replicate the Student Marks Study in 2014 and 2015 in TILO schools which have not received further interventions in order to see if the impact of the TILO activities have been sustained.
- Include other relevant stakeholders (such as Idara and Muderiya education officers as well as school principals) in interventions involving training of teachers. This makes a big difference in terms of securing their buy-in and their engagement during the intervention, as well as their interest in and ability to continue to support the initiatives after the end of the project.
- Consider ways to decentralize decision-making about the allocation of financial and technology resources to ensure the sustainability of TILO interventions.
- Use a phased approach to implementing interventions so that adjustments can be made to address any problems identified in a pilot before the model is rolled out widely.

ACRONYMS AND TERMS

| | |
|----------------|---|
| CAPS | Critical Thinking and Problem Solving, a measurement scale of these skills in students conducted by MOE |
| CCIMD | Centre for Curriculum and Instructional Materials Development |
| CMPC | Classmate PC, a model of computer developed by Intel |
| Creative | Creative Associates International Inc is the prime contractor for the USAID-funded TILO program. |
| EEl | Egypt Education Initiative |
| ERP | Education Reform Program, a USAID-funded cooperative agreement with American Institutes for Research (AIR), was USAID's response to the Government of Egypt's effort to reform the education system to support effective schools and improve learning outcomes. |
| ESP | Education Support Program, a USAID-funded project |
| ETM | Effective Teaching Methods—used by teachers through TILO training to increase learning outcomes in their classes |
| Five-Year Plan | Egypt MOE Strategic 5-Year Plan for the reform of pre-university education, which specified ICT goals and structure in schools. |
| GILO | Girl's Increased Learning Outcomes, a USAID-funded project to build numbers of girls in school and the progress in their learning |
| IBM | International Business Machines, one of TILO's partners |
| ICT | Information and Communication Technologies, a term that includes use of any digital data gathering, data sharing and interactive connection between and among users. |
| Keys | A Cairo-based TILO project implementing partner of Creative Associates International that is a training organization that targets teachers, school administrators, and MOE supervisors |
| MOE | The Egypt Ministry of Education, including all the management, supervisory and administrative personnel supporting education throughout Egypt. |
| MOU | Memo of Understanding, an agreement between partners |
| NGO | Non-Government Organization that could be either a local or international organization that is not directly funded by the Egyptian government. |
| NSP | New Schools Project, a USAID-funded project, increased school access and enrollment of girls in underserved communities through efforts to |

sustainably enhance the quality of teaching and learning, advocacy approaches to community mobilization, new school infrastructure (primary, preparatory and community multi-grade schools) development and adult literacy initiatives.

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| Pal-Tech | A DC-based TILO project implementing partner of Creative Associates International that provides assistance in technology use for training |
| PAT | Professional Academy of Teachers |
| PfCE | Partners for a Competitive Egypt, a former USAID-funded education project that included a component to integrate ICT into Egyptian teaching and learning |
| PMP | Project Monitoring Plan for the TILO project, as established by the monitoring and evaluation planning process |
| PPP | Public-Private Partnerships created to support TILO and MOE objectives |
| SBR | School Based Reform schools, designated by MOE as meeting national standards in the process of school reform |
| SCOPE | Standards-based Classroom Observation Protocol for Egypt, a form used for recording observations during classroom visits |
| SIP | School Improvement Plans self-created by all primary schools |
| STAMP | School Technology Advanced Management Plan (STAMP), plans created by TILO schools during leadership training to sustain the advances made during the TILO project. |
| STEAP | School Team Excellence Award Program, awarded by MOE for schools with good progress on their reform plan |
| TDC | Technology Development Center(s) of MOE created to support the use of information and communication technologies (ICT) in education in Egypt |
| TILO | Technology for Improved Learning Outcomes, the title of the project about which this report is written |
| TSS | TILO Smart School, a preparatory school chosen by MOE for upgrading of its technology capacity to become a TILO school |
| USAID | United States Agency for International Development |

PART I TILO PROJECT OVERVIEW AND BACKGROUND

Context and Rationale

Strategic Objective and Goals

TILO Components

Evolution of TILO Scope of Work

Project Partners

Context and Rationale

Over the past decade, the Ministry of Education (MOE) in Egypt has focused its work on raising the level of teaching and learning in its schools and increasing the number of students enrolled, especially girls and particularly in primary education. USAID has reinforced this focus with funding for projects that support capacity building, reform and change management, school building and increased enrollment, among other initiatives. Throughout, MOE has worked collaboratively with the Ministry of Communication and Information Technology (MCIT) to explore how technology might support education reform work.

With input and support from many stakeholders, the MOE created the “Ministry of Education 5-Year Strategic Plan for 2007-2012”, outlining areas of focus and stating goals as well as strategies for each. The Ministry plan includes twelve programs for educational reform:

1. Comprehensive Curriculum & Instructional Technology Reform
2. School Based Reform (SBR)
3. Human Resources and Professional Development
4. The Institutionalization of Decentralization
5. Technology Development and Information System
6. Monitoring and Evaluation
7. School Construction
8. Early Childhood Development
9. Basic Education Reform
10. Secondary Education level Development
11. Education for Girls and Out-of-School Children
12. Children with Special Needs

The “Technology for Improved Learning Outcomes” (TILO) project was created, funded and implemented to support ten of the twelve focus areas, with a primary focus on #1”Comprehensive (Curriculum and) Instructional Technology Reform.” TILO was designed to enhance the quality of teaching, learning and decentralized school management through the effective use of technology in schools.

The rationale for the TILO model and approach was based on two major tenets. First, that any reform effort must ultimately aim to increase learning outcomes, and secondly, that technology could only improve learning outcomes with a number of supporting elements in place. Many education technology efforts in Egypt and elsewhere had not been particularly successful increasing learning outcomes because they were based on the thinking of “add computers and stir” without considering what else was needed for the computers to make a difference in student learning.

TILO knew that for technology to make a difference in learning outcomes, all stakeholders--teachers, school administrators, boards of trustees, community members, supervisors at the Idara level, MOE at the Muderiya level, Subject Area Specialists at central MOE, Technology Development Center staff at central and Muderiya levels--must be well versed in what technology was useful, how it connected to Egyptian curriculum and how it could increase learning outcomes. All must be ready to embrace the changes that technology would bring to their classrooms, schools, Idaras and governorates. Appropriate technology must be readily

available to students and teachers, and a decentralized management system for technology must be in place.

With this in mind, TILO consciously enlisted the assistance of Muderiyas and governorates to select schools that were already planning for reform and change, would commit to training their administrators and teachers. TILO used a demand-driven selection process in which primary schools applied to TILO, stating desire and commitment. Digital resources were, for the most part, free programs appropriate for classroom use in Egypt. Technology models were made to be readily available to teachers and learners and to suit school situations. An extensive training program was designed to be purposely flexible to enable units to be adjusted and used separately as needed. MOE officials were included throughout the process and were trained to fully understand the TILO model and to provide support to schools and teachers. This ensured that TILO activities could eventually be owned by the MOE and sustained beyond the life of the project.

Strategic Objective and Goals

The Technology for Improved Learning Outcomes (TILO) project is part of the USAID education objective (AO-22), now entitled Improved Access to Quality Education. The TILO project focuses on two goals:

- To improve student learning outcomes by upgrading the quality of teaching and learning as well as school management through the use of technology; and
- To introduce a holistic, integrated model for adding technology into school-based reform activities.

TILO Components

To meet its goals, TILO focused its work in four areas:

Component 1--Improve the quality of teaching, learning, and IT management in targeted schools.

Component 2--Public-private partnerships established for supporting TILO objectives and other innovative educational technology interventions.

Component 3--Build capacity for effective management of technology for education at all levels of public education administration.

Component 4--Monitor and evaluate how TILO activities are impacting improvements in teaching, learning, and management in targeted schools.

Evolution of TILO Scope of Work

The TILO project began in 2007 with the intention of reaching approximately 200 primary and preparatory schools undergoing school-based reform and 85 public experimental Smart Schools at the preparatory level. Since that time many changes have taken place in Egypt, including the

H1N1 crisis of 2009-2010, pockets of religious unrest in 2010, and eventually the Egyptian uprising of 2011, which has led to continued unrest and political change. During this time the TILO project has also undergone changes, some of which were designed to respond to these changes and some that capitalized on opportunities, progress, and demand and support from members of the Ministry of Education at all levels (central, Muderiya, Idara and school). For example, TILO was originally designed to work in seven governorates to support institutionalization of a technology model in 200 school-based primary and preparatory schools and work at the national level to support 85 experimental schools that would adapt the “smart school” model.

After its fourth year, TILO was expanded and extended to include a new school-based reform preparatory model piloted in 127 schools and to adjust the type of capacity building to include support to the Professional Academy of Teachers. Additionally, strong support for local management and decentralized methods was emphasized so the TILO model could grow and expand at the primary and preparatory levels and become institutionalized. Over the course of the project, TILO worked in a total of nine governorates: Alexandria, Assiut, Aswan, Beni Suef, Fayoum, Minya, Qena, Giza, and Greater Cairo (which includes Helwan and 6th of October).

Project Partners

TILO is implemented by Creative Associates International and its partners: Pal-Tech, Keys to Effective Learning (Keys), and Seward, Inc. Creative is based in Washington, DC, and provides technical assistance to education. Pal-Tech, also in the Washington, DC area, provides assistance in technology use for training. Keys to Effective Learning is a training organization based in Cairo which targets teachers, school administrators, and MOE supervisors. Seward is an instructional design firm based in Minneapolis, Minnesota.

Target Governorates and Schools

| TILO Schools by Governorate | | | | |
|-----------------------------|-------------|------------|-----------|-------------|
| Governorates | SBR Primary | SBR Prep | TSS | Grand Total |
| Alexandria | 30 | 26 | 6 | 62 |
| Assiut | | | 4 | 4 |
| Aswan | 28 | 12 | | 40 |
| Beni Suef | 54 | 23 | 8 | 85 |
| Cairo | 4 | 18 | 51 | 73 |
| Fayoum | 14 | 22 | 4 | 40 |
| Giza | | | 12 | 12 |
| Minya | 44 | 14 | | 58 |
| Qena | 18 | 12 | | 30 |
| Grand Total | 192 | 127 | 85 | 404 |

PART II

COMPONENTS: ACTIVITIES, ACCOMPLISHMENTS AND RESULTS

**Component 1: Improve the Quality of Teaching,
Learning and IT Management in School**

Component 2: Public Private Partnerships

**Component 3: Building Capacity for Effective
Management of Technology**

Component 4: Monitoring and Evaluation

Component 1

Improve the Quality of Teaching, Learning and IT Management in Schools

1.1 School Selection

1.2 TILO Training, Follow-Up and Support

1.3 TILO Technology Models

1.4 Digital Resource Collection

1.1 School Selection

1.1.1 SBR Primary School Selection Process

The TILO Demand-Driven Approach to School Selection

One of the primary factors in the success of the TILO project was the demand-driven school selection process in SBR primary schools, resulting in ownership and buy-in by all stakeholders from the start of the intervention. For SBR primary schools, the project focused on seven target governorates (Alex, Cairo, Fayoum, Beni Suef, Qena, Minya and Aswan). Although TILO received requests from the MOE to include other governorates in order to give other locations a chance to benefit from assistance, USAID preferred that the project stick to the original plan and work in Idaras and schools that had not received previous USAID program support.

In preparation, the TILO team felt it important to meet with staff from other education projects to review lessons learned, build on successful strategies and, most importantly, seek their recommendations related to Idara /school selection. The team met with the following USAID projects: School Team Excellence Award program (STEAP), Education Reform Project (ERP), National Book Program (NBP) and New Schools Project (NSP). They also met with the Egypt Education Initiative (EEI) and the World Bank.

Rationale for Choosing the Demand-Driven Selection Model for SBR Primary Schools

The demand-driven school selection model is a multi-faceted process in which primary schools apply to become part of TILO's educational reform efforts. In collaboration with the Egyptian

Ministry of Education and TILO, schools underwent a rigorous selection process through which they demonstrated their readiness to make a solid commitment to full participation in the TILO project.

The demand-driven model had four key elements:

- Foundation of School-Based Reform (SBR) from School Team Excellence Award program (STEAP)
- Applications reviewed by a committee including representatives of MOE and TILO
- Verification of infrastructure readiness for technology (e.g. space, electricity, phone lines)
- Meeting with school administrators to verify the reform efforts in their school and ensure the schools' commitment

TILO began coordinating with the School Team Excellence Award Program (STEAP) to build on their nationwide experience with SBR efforts. STEAP's mandate was to raise awareness among school communities about school-based reform and the importance of implementing and achieving targets specified in the National Education Standards (NES) MOE. TILO worked closely with the STEAP project to understand their criteria to determine which Idaras in each of the priority governorates had the highest number of STEAP participant schools. This approach was seen as a proxy for determining how familiar Idara and school staff would be with the reform and school improvement process. It was TILO's intention to build upon the valuable work of STEAP and help interested schools and communities who were already committed to school reform use technology as a catalyst for school improvement.

Through the demand-driven model, TILO was able to ensure that member schools worked in full collaboration with the project and were willing to dedicate the time and resources involved in the reform process. Moreover, schools became joint decision-makers and were able to have a say in how the project would be implemented in their region, helping the project meet the specific needs of the community and any stakeholders involved in the area.

As a result of working closely in the start-up stages, schools that participated in the TILO project tended to implement the project with fidelity. The schools' desire to participate, their pledge to fulfill the extensive training components and their ownership over the choice to undergo reform ensured that they were able to reach their highest potential by way of the improvement efforts. In turn, the project was able to meet its goal of improving the quality of general education in member schools through the use of technology and intensive pedagogical training.

The TILO team spent an enormous amount of time defining the steps and materials needed to select Idaras and schools through the criteria-driven approach. TILO developed a selection protocol and procedures that served as the guide for school selection activities in all governorates and as an example of how to build demand and commitment among schools. The team also developed requests for commitment to be signed by the MOE and school principals. In addition, the team created a clear, detailed method for school evaluation and scoring. After completing the scoring section, the top schools were selected and were subject to thorough field visits with a detailed checklist to confirm information and data provided as well as to check infrastructure readiness. This process allowed TILO to remove barriers to the implementation of technology as well as to assess factors that might affect the sustainability of the project. Schools that were unable to support the technology or to demonstrate commitment did not participate in the project. Schools with minor difficulties were given the opportunity to address issues and still be

considered for participation. Any schools that did not want to be included were not forced to do so. These requirements ensured that participating schools were able to dedicate the fundamental resources required for the project to succeed within their school environment.

Because the MOE also played a key role in the evaluation of school readiness, the MOE, TILO and other stakeholders refined a complex evaluation process that determined a school's readiness for reform. Through building capacity in the Idara, the MOE can now evaluate schools on their own to participate in ministry-led expansion initiatives in non-TILO schools.

SBR Primary School Selection Criteria

After reaching an agreement with the MOE undersecretaries on the selected Idaras, the TILO team met with the Idara Directors and invited all schools within the chosen Idaras to an orientation for an overview of the TILO project, the selection process and the school commitments. The candidates were then shortlisted and finalists were chosen by a panel which included Idara staff. Their selection was based on information gathered during site visits and the criteria mentioned below. The process took approximately one month.

TILO selected schools based on the following criteria:

- The school has an active leadership and a willing, self-motivated school staff; the school staff share a clear common vision and mission.
- A school principal who is willing to support the TILO Master Teachers and free part of their teachers' teaching schedule to attend the training and train other teachers at the school. The school should be willing to dedicate a suitable room for training and another for the TILO activity room.
- Willing to support the use of Effective Teaching Methods (ETM) and technology to improve the learning outcomes.
- The school will enable the teachers to apply the Effective Teaching Methods technology into their classrooms, facilitate any problems they may have, provide them with the resources they need, motivate them, and give them constructive feedback.
- The school will not relocate the Master Teachers to other schools or other positions within their school for five years. This way the school receives the benefits from those teachers trained.
- The school is willing to work with the community to find ways to sustain the technology after the end of the project.

Categories of the SBR school selection process

Category I Reform preparedness

- Has School Improvement Plan (SIP) or demonstrates other strong evidence of participation in the reform process
- Has a Board of Trustees
- Has strong leadership, based on the assessment of Idara directors and TILO's field visits
- Has a high percentage of teachers who are full-time and have formal training in education
- Demonstrates solid knowledge and experience with school based management

Category II Willingness to commit to TILO goals. Schools agree to:

- Choose five master trainers to be released for training
- Master Trainers will remain with the school for a minimum of five years
- Chose three core subject supervisors and five administrators to participate fully in TILO training
- Release teachers for training
- Develop a Technology Management Committee and school based management plan to manage technology in schools
- Plan for sustainability and develop methods to cover recurrent costs
- Work with the community
- Participate in research related to learning outcomes and the use of technology in school

Category III Physical school readiness

- Presence of working telephone
- Electricity
- Adequate security
- Available training space for a minimum of 18 people

Description of the SBR Primary Schools Selection Process

TILO visited each of the seven governorates and recommended Idaras based on STEAP data, taking into consideration the following criteria, which had been presented to the MOE Steering Committee members:

- Selected schools will be in one or two contiguous Idaras in each governorate.
- The rationale for recommending one or two Idaras was that it would ease the management and coordination of project activities within a limited number of Idaras per Governorate (training, equipment installation and community sustainability).
- Selected Idaras with a strong, proactive leadership that demonstrate motivation. Idaras should have a high proportion of schools which progressed in implementing their school improvement plan under the USAID-funded STEAP project.
- The Idara is not included in USAID's ongoing ERP activities and is not a participant in any other USAID projects.
- Exclude the governorate capitals as they are targeted by many other donors

By analyzing STEAP data, the team was able to categorize and sort schools that performed well at different levels with regard to the National Education Standards, as well as at implementing their "School Improvement Plan". STEAP data provided the rating of performance as well as winning schools in each governorate.

Each school received:

- Duties and Responsibilities of the school evaluation team
- TILO Training Plan
- TILO orientation PowerPoint, including training plan

In all TILO governorates, a complete orientation about TILO was provided to the Undersecretaries of Education, which included a package with the following information:

- Analysis of eligible Idaras in each governorate
- TILO orientation package
- Duties and responsibilities of the Muderiya and Idara MOE coordinators
- Criteria-based school application
- School scoring sheet

TILO invited governorate undersecretaries to select one or two Idaras that were contiguous. Secondly, within selected Idaras, TILO worked with the Idara leadership to invite schools to apply to participate and to select schools from among those that applied.

Inclusion of MOE Muderiya and Idara Coordinators

In agreement with the MOE, a TILO Coordinator at the Muderiya and Idara level was assigned to coordinate all TILO project activities related to implementing project tasks and objectives in the TILO governorates. This person served as the chair for the TILO project evaluation team for school selection, established relationships and obtained the necessary support from MOE officials on different levels to facilitate project implementation.

The second TILO Coordinator was the MOE Idara Level Coordinator, the project's main link between the TILO Governorate Coordinator, staff and the schools in each governorate.

These two positions played a crucial role in the success of TILO as the Coordinators were involved in day-to-day project implementation and decision-making, providing a close link between TILO and the MOE.

SBR School Selection Evaluation Process

TILO requested that the MOE send an official letter to the project to nominate Evaluation Committee members from the Muderiya and Idara to participate in the school selection process. The committee included:

- An MOE contact person (Chairperson)
- Four representatives from the MOE – one Muderiya contact, one TDC representative and two Idara representatives
- Two representatives from TILO

After receiving all the applications from interested schools collected by the Idara, the committee conducted a half-day evaluation workshop during which TILO invited all committee members to discuss the scoring process and sign the responsibility and confidentiality agreement.

Benefits of Demand-Driven School Selection Process:

- Capacity-building at the Idara level
- Joint investment among stakeholders
- Fidelity of implementation

- Stakeholder support
- Ownership of the reform process

TILO SBR Primary Schools Final Selection by Governorate⁴

| TILO SBR Primary Schools by Governorate | | |
|---|-------------------|-----------------------------|
| Governorates | Number of Schools | Idaras |
| Alexandria | 30 | 1 (El Montazah) |
| Aswan | 28 | 1 (Misr El Nuba) |
| Beni Suef | 54 | 2 (El Wasta, Naser) |
| Greater Cairo | 4 | 1 (Helwan) |
| Fayoum | 14 | 3 (West Fayoum, Etsa, Tamy) |
| Minya | 44 | 2 (Bani Mazar, Matay) |
| Qena | 18 | 1 (Naga Hamady) |
| Grand Total | 192 | 11 |

1.1.2 TILO Smart School (TSS) Selection

Based on an agreement with the Ministry of Communication and Information Technology (MCIT) and the MOE, USAID requested TILO to contribute to the continuation of the MCIT and MOE Smart Schools initiative. The Smart Schools initiative was started in 2002. During the first phase, the focus of the activity was on installing and maintaining technology at the school level in preparatory schools. The idea was to transform “experimental” prep schools (governmental schools which taught math and science in English) into “smart schools” (which have more technology and where ICT is used more intensively in the education process). This emphasis on the hardware was common for many of the pioneering educational technology programs around the world and resulted in a much greater understanding of the management and resource requirements related to maintaining complex technologies in school environments. The early emphasis on infrastructure also resulted in a widespread recognition that technology in school settings was more successful at impacting educational outcomes if it was positioned as a tool for teaching and learning and when teachers and their supervisors understood how to use technology as instructional tools within a much broader pedagogical context. During the second phase, the responsibility of managing the schools was shifted from MCIT to the MOE.

These lessons, combined with the experience of other education technology programs in Egypt and the many advancements that have taken place in the field of technology since the turn of the century, inspired the TILO team, together with the MOE and MCIT, to review and update the Smart Schools model and propose a more streamlined and pedagogically focused model for the TILO Smart Schools (hereafter referred to as TSS).

⁴ Details of SBR Primary Schools by Idaras and Governorates can be found in Annex 1E

At the start of TILO, there were 85 experimental schools remaining to complete the initiative. At the inception of the project, the TILO team met with senior MCIT advisors to gather information about the previous Smart Schools model (phases 1 and 2) and to discuss the TILO commitment and proposed activities to transform the remaining 85 experimental schools to Smart Schools. At this meeting, it was agreed that TILO would work closely with the MCIT and MOE to understand more fully the experiences of the past and to propose an updated Smart Schools (TSS) Model, based on lessons learned and best practices.

The TILO team reviewed available documents provided by MCIT, USAID and other organizations on the Smart Schools model, as well as lessons learned and agreements developed through the Egypt Education Initiative (EEI) and many other international efforts designed to improve education through technology.

In addition, the team visited schools and conducted interviews with a variety of individuals engaged in Smart Schools to understand the challenges and successes on the ground. TILO interviewed two of the education service providers (ESPs) for the Phase 1 Smart Schools who provided valuable feedback on the issues related to implementation, training, and sustainability. The TILO team visited a Smart School from Phase 1 (a school in which technology systems are managed by MCIT-procured education service providers) and one from Phase 2 (a school in which management has been shifted to the MOE) in order to understand some of the issues related to connectivity, sustainability and long term school and Idara level management. During these visits, the TILO team interviewed teachers and students whenever possible.

The project team also met with private sector representatives from multinational corporations such as Microsoft, Intel, HP, Oracle, and Cisco to benefit from their experience as partners in the Egypt Education Initiative (EEI) as well as to form potential partnership agreements.

As the last step in preparation for creating a TILO Smart Schools model, the TILO team, working in close collaboration with the MOE's Technology Development Center (TDC), conducted school visits to the 85 experimental schools proposed by the MOE and MCIT to become new smart schools. The TILO team also visited additional "spare" schools which might replace any experimental school on the original list that did not meet the readiness factors for participation in the TILO program (availability of space for TSS lab, adequate infrastructure, security) or was too far from other schools for TILO to cluster training.

This review process and the subsequent conversations with key representatives at the MOE and MCIT greatly informed TILO's recommendations for the TSS approach.

TILO Smart School Selection Criteria

The MOE national and governorate level Technology Development Centers (TDCs) and the TILO team worked together to locate eligible experimental schools and determine which ones met basic readiness criteria and could be clustered for training, peer learning and increased chance of connectivity. In close cooperation with the TDCs across the governorates, the TILO project team and TDC representatives conducted school visits to approximately 100 experimental schools suggested by the MOE and MCIT.

Three criteria were considered to be minimum requirements in determining whether the experimental schools should be included in the TILO project:

- Confirmation of status as an experimental school
- Physical readiness (security, electricity, space)
- Ability to be clustered with other schools within the governorate

TILO Smart Schools Final Selection by Governorate⁵

| TILO Smart Schools by Governorate | | |
|-----------------------------------|-------------------|--|
| Governorates | Number of Schools | Idaras |
| Alexandria | 6 | 5 (El Montazah, Alex Center, Alex East, Alex West, El Amiria) |
| Assiut | 4 | 1 (Assiut) |
| Beni Suef | 8 | 5 (Naser, Beba, Beni Suef, El Fashn, Somosta) |
| Greater Cairo | 51 | 23 (Road El farag, El Sahel, Hadayek El Koba, Helwan, El Khahera El Gededa, El Nozha, West Nasr City, El Mataria, El Marg, El Sayeda Zeinab, Down Town, Misr El Kadema, El Waily, El Basateem -Dar El Salem, Maadi, East Nasr City, Zeintoun, Ain Shams, El Kalifa, Shoubra, Cairo (Bab El Shereya), 15th May, El Saf) |
| Fayoum | 4 | 4 (Etsa, Fayoum, Senouris, Ibshway) |
| Giza | 12 | 6 (Ganoob Giza, El Omrania; 6th of October, El Dokki, El Haram, El Hawamdia) |
| Grand Total | 85 | 44 |

The Differences between the Selection Processes for School-Based Reform (SBR) Schools and TILO Smart Schools (TSS)

School selection process for School-Based Reform (SBR) Schools During the first visit to the MOE governorate office, the TILO senior team met with the first undersecretary and the Muderiya stakeholders. The TILO senior team explained the project components and clarified the objectives of the project. They conveyed to the governorate senior team the criteria they looked for in participating Idaras and schools.

The TILO senior team worked closely with the Muderiya stakeholders to identify the Idaras in which they chose to implement the project. Following the Idara selection, the TILO team met with the Idara manager and team to explain the project objectives and school selection process and to plan an orientation day to introduce TILO to all schools working within the Idara.

During the orientation day, the TILO management team explained the project components, the technology model and the training model in detail. They also clarified the details of the school commitment needed for participation in TILO. Following the orientation, TILO management invited all the interested schools to fill out a form applying to participate in the project. TILO

⁵ Details of TSS Schools by Idaras and Governorates can be found in Annex 1E

management worked with the MOE team to form an MOE committee to review the school application forms and select qualified schools to participate in the project. In addition, the TILO technical team visited the schools to check the infrastructure, meet with the school leadership and make sure that the information they filled out in their applications reflected the actual situation at the school. This demand-driven model in which interested schools apply for inclusion proved to be most efficient in guaranteeing the necessary level of school commitment needed to implement the project.

School selection process for TILO Smart Schools (TSS) schools The school selection process for the TILO Smart Schools (TSS) schools was different from the school selection process for the School-Based Reform (SBR) schools. TILO Smart Schools (TSS) were nominated by the MOE and the Ministry of Communication and Information Technology (MCIT). The MOE and MCIT had a plan to convert experimental schools into smart schools and provided TILO with the list of these TSS. The TILO technical team visited the schools to ensure that they had the infrastructure required to install the technology model in their school.

1.1.3 TILO Preparatory School Selection

Near the completion of TILO's fourth year, the governorate undersecretaries requested to the MOE and USAID that TILO expand the SBR primary model to include preparatory schools receiving students from TILO primary schools. Their objective was to build on the primary school model and maintain continuity by expanding the TILO model to public preparatory schools within the same districts where the project was currently supporting primary schools. This expansion helped students graduating from those TILO primary schools to continue receiving the same quality of education to which they had become accustomed, e.g. applying active learning, integrating ICT, etc. Otherwise, students would lose skills they had already acquired.

In response to strong local demand for TILO to build capacity in implementing a TILO model for preparatory schools, USAID and the MOE approved an expansion of the TILO project in 127 schools within TILO Idaras. This expansion also allowed TILO to provide a prep model for the MOE that can be replicated and expanded after the completion of the TILO project.

The main objectives of the expansion to prep schools was to:

- Support the MOE's use of technology they currently had available to expand the TILO model at the preparatory stage.
- Provide opportunity to SBR students who completed their primary stage in TILO schools to continue their education in preparatory schools that support the use of effective teaching methods and integrated technology.
- Develop capacities at the Idara level to deliver the different pieces of the TILO training modules for leadership, supervisory and ICT Integration.

The TILO expansion into the 127 prep schools used a particular approach where the MOE was to lead the effort with TILO coaching to build their capacity. This was possible in the Idaras and governorate offices that had been engaged in TILO for years and understood the basic approach. They could, in turn, train and support other Idara staff on the process and structure and support both primary and preparatory schools in their region. This process built the capacity for the

school and Idara and enabled students to maintain their use of technology after graduating from a TILO-supported primary school.

TILO Preparatory School Approach in 127 Prep Schools

- Create 127 TILO Prep Model schools
- Build capacity at the Muderiya and Idara levels so they can provide training to sister schools
- Depend on MOE resources and computer labs in prep schools

TILO Preparatory School Final Selection

TILO Preparatory schools were selected in the same Idaras with which TILO was working. Prep schools were selected in all the governorates where TILO was implementing the Primary model except for Assiut (Alex, Beni-Suef, Fayoum, Minya, Qena and Aswan). In addition, since TILO was operating in TSS schools in Greater Cairo, the Prep model was included in that governorate.

In every participating Idara, TILO selected an adequate number of MOE staff to develop as leadership trainers, teacher trainers, IT trainers and supervisory trainers.

TILO Prep Schools Final Selection by Governorate⁶

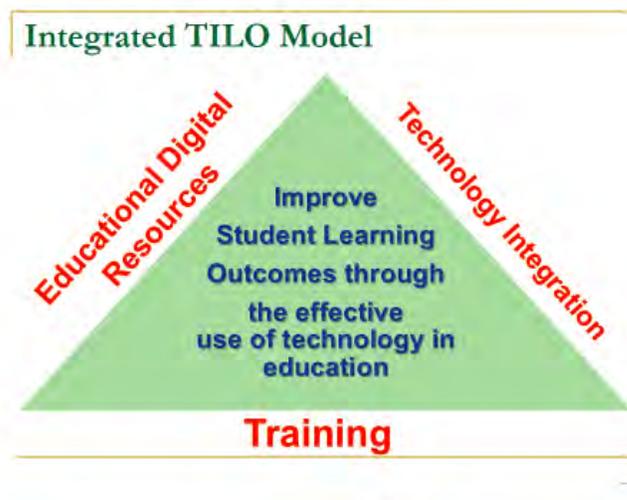
| TILO Prep Schools by Governorate | | |
|----------------------------------|-------------------|---|
| Governorates | Number of Schools | Idaras |
| Alexandria | 26 | 1 (El Montazah) |
| Aswan | 12 | 1 (Misr El Nuba) |
| Beni Suef | 23 | 2 (El Wasta, Naser) |
| Greater Cairo | 18 | 3 (Helwan, El Nozha, East Nasr City) |
| Fayoum | 22 | 4 (West Fayoum, Etsa, Senouris, Tamyra) |
| Minya | 14 | 2 (Bani Mazar, Matay) |
| Qena | 12 | 1 (Naga Hamady) |
| Grand Total | 127 | 14 |

⁶ Details of TSS Schools by Idaras and Governorates can be found in Annex 1E

1.2 TILO Training, Follow-Up and Support

1.2.1: TILO Training Model

The TILO model is based on the premise that technology can only improve learning outcomes if a number of supporting elements are in place. Rather than taking an “add computers and stir” approach, it is essential to building upon a solid pedagogical foundation. Before teachers can be trained to use technology effectively in the classroom, they must be effective teachers. Therefore, the Integrated TILO model (depicted in the diagram below) begins by providing teachers with essential pedagogical training. Only after that are teachers trained on the technology itself and how to use the digital resources to teach.



Objectives of TILO Training

The objective of the TILO Training Model was to improve student learning through improving teachers' use of effective teaching methods including the integration of technology. To improve and sustain students learning, the TILO training model included:

- Training teachers to use effective teaching methods and to integrate technology in their classrooms
- Training master teachers and teacher trainers to train other teachers to use effective teaching methods and integrate technology in their classrooms
- Training school supervisors and MOE supervisors to assess and support the use of effective teaching methods and the integration of technology in classrooms
- Training school administrators and Idara teams to lead and sustain this change in their schools
- Developing the capacity of the MOE stakeholders to sustain and institutionalize the project in more schools and other Idaras

Framework of TILO Training

The TILO training team followed these steps during the training cycle:

- Identify the training needs of teachers, administrators, and supervisors
- Design training programs
- Implement training using the “Prepare-to-Practice” model
- Monitor, assess and provide ongoing support for teachers in their classrooms
- Support school administrators, teaching supervisors and MOE Inspectors

Target Groups for TILO Training

The TILO training plan included the following groups: Teachers, Senior Teachers, School Administrators, MOE Supervisors/Inspectors, Idara Follow-Up and Support teams, Quality Assurance teams, Training Unit teams and Technology Development Center (TDC) teams.

In each TILO school, TILO trained five school administrators, five teachers, three senior teachers, and at least 60 MOE Supervisors and team members at the Idara and Muderiya level. The training cycle for each cluster of schools lasted for 8-10 months, giving participants the opportunity to learn and practice what they learned while receiving ongoing support from the TILO Master Trainers.

Teachers’ Application and Selection Process The TILO training team visited the selected schools to meet with the school administrators, senior teachers and teachers. During the visits, TILO trainers conducted a complete orientation session for the school team to explain the project objectives, the project components including the training and the technology model. TILO trainers clarified what the TILO project would contribute to the school, how TILO will support the school, the project role and the school-team role. In addition, TILO trainers answered questions from the school team.

At the end of the visit, TILO trainers invited interested school teams to apply to be part of the TILO school team. TILO trainers gave interested school members the school administrators, teachers, and senior teachers’ application forms to complete. The application forms included needed information related to the participant’s education degree, years of experience, subject taught and grade. It also included personal information about credentials, leadership skills, computer skills, applicant’s commitment to transfer training to other teachers at the school and references.

School Staff Evaluation and Selection Process TILO trainers reviewed all the applications and ranked them based on the most qualified candidates. TILO trainers conducted interviews with the candidates to select the best candidates to participate in the TILO training program and lead the change in their schools. In every TILO school, five school administrators, five teachers, and three senior teachers were selected to be the TILO team at the school. The TILO training team at the school then attended the TILO training workshops in a cycle for 8-10 months.



Students in Minya Governorate doing group work and modeling student-centered learning.

Structure of TILO Training

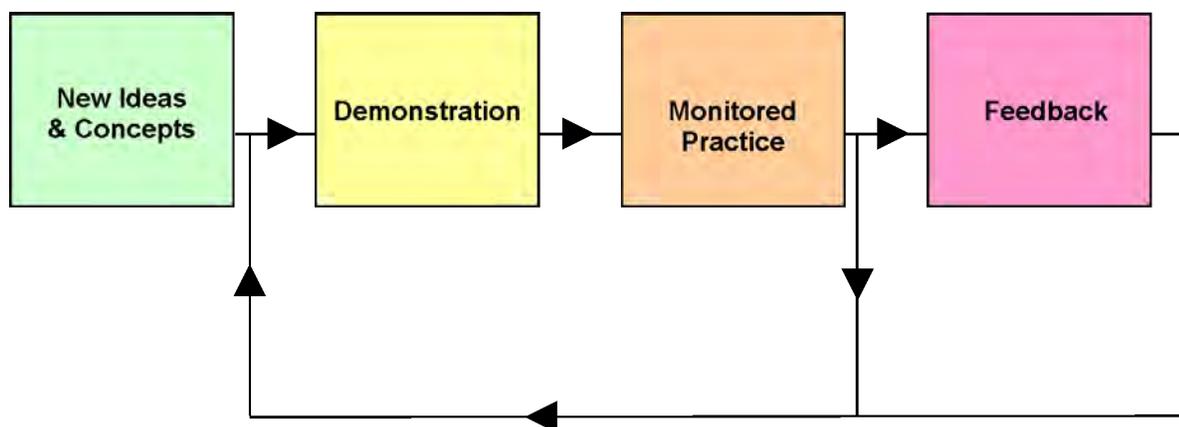
The combination of structure, flow, responsiveness and support and follow-up components contributed to the wide coverage and sustainability of TILO training. Among these were:

- **Master Teacher selection** Five core-subject teachers were selected from each TILO school to become Master Teachers. Teachers interested in becoming Master Teachers completed an application and were interviewed by TILO Master Trainers who selected the most committed and prepared teachers. Master Teachers were expected to fully participate in the TILO trainings and to train the other teachers in their school.
- **In-School training** TILO grouped schools in each Idara into clusters of six schools (on average). These clusters were split into sub-clusters of 2 or 3 schools which were trained together. For certain types of workshops, all 6 schools in a cluster were trained together in a central location. Clustering schools with other schools gave participants the opportunity to share experiences, collaborate and learn from one another. Each TILO school provided a room suitable for teachers to use for their TILO training by Master Trainers and for them to use to train other teachers in their school. Master Teachers from two neighboring schools were trained together at one of their schools, moving to the other school for the next training. This meant that teachers were trained in their own schools resulting in less disruption to their school day and less time spent traveling. The research also tells us that the closer to their own classroom a teacher is trained, the more chance there is that the teacher will transition the learning of new teaching concept to his/her classroom. Schools always felt part of the TILO program and looked forward to training days and TILO project visits.

- **TILO Master Trainers are former teachers** TILO Master Trainers were interviewed and selected based on previous experience and their ability to deliver effective training. TILO Master Trainers have faced the same challenges as the teachers they trained--overcrowded classrooms, heavy curriculum, limited teaching time and few resources. This empathy allowed for effective problem solving by teachers and trainers as they discussed how the new teaching concepts could be integrated into their classrooms.

Prepare-to-Practice Learning Model

TILO training delivery was based on a “Prepare to Practice” learning model. The model is highly interactive and participatory; it includes the presentation of new ideas and concepts through questioning, charting and visual aids. This is followed by the demonstration of lessons appropriate to the grade and subjects of the participants and guided practice of the participants as they develop their own lesson plans incorporating these new ideas and concepts appropriate to the learning objectives of their classroom lessons.



Practical Training Model

The eight teacher-training modules were built on the “Prepare-to-Practice” training model. This model focuses on the practical application of effective teaching skills including the integration of technology. The majority of training time was spent with teachers observing best practices, followed by the Master Teachers developing and demonstrating their own lessons that incorporate the new teaching concepts. This model made the training less theoretical and more practical. When the Master Teachers left the training room, they were prepared to return to their classrooms and immediately begin to implement effective teaching methods.

- **Timing of training modules** Delivery of the eight teacher training modules was spaced out over a period of approximately ten months. This allowed for time between trainings

in which the teachers could practice in their classrooms what they had learned in their training. Because teachers need to know how to properly manage their students' time and resources to effectively implement student-centered learning, their first module was Student-Centered Learning, followed by Classroom Management. Significant time was given following these trainings for teachers to implement these new teaching concepts. The objective was for them to be comfortable with the approach and make it part of their teaching style. The other six modules were each conducted individually, for one day each, with time between the modules for teachers to incorporate these methods into their teaching practice.

- **Sequence of training modules** Teachers attended the eight modules in order--Student-Centered Learning, Classroom Management, Critical Thinking I, Problem Solving, Critical Thinking II, Authentic Assessment, Integrating Technology and Training of Trainers. Each module built on the skills previously learned and practiced. This scaffolding strengthened teachers' skills over time.
- **Follow-Up and Support** The strong Follow-Up and Support component contributed the most to the positive impact of TILO training. Teachers and school administrators received ongoing, regular follow-up and support from the TILO team in partnership with supervisors from the Idara and Muderiya levels. Teachers were visited and their practice observed in their classrooms and provided with constructive feedback as they implemented the effective teaching methods they were learning. These visits took place after every training module, with some teachers receiving a number of visits depending on the level of support needed. Master Teachers were visited by the Follow-up and Support team during their delivery of the TILO training to other teachers in their school. School Administrators received follow-up and support visits to discuss and review the planning documents they developed as an outcome of each of their training modules. Schools were monitored by the Follow-Up and Support team and classified according to their position on the spectrum of moving towards sustainability. Schools deemed to be lagging in their movement towards sustainability were given more support. The ongoing, regular follow-up and support in the schools made the teachers and school administrators feel the impact of the support from TILO. TILO was not a project that just delivered and installed technology and provided training; TILO supported schools to use technology within their effective teaching methods to help their students learn better and learn more.

TILO Training Packages

School Administrators, Senior Teachers, Supervisors, and Idara Team Training

TILO leadership training for school administrators, senior teachers, supervisors, and Idara team members introduced them to the use of effective teaching methods and the integration of technology in their schools. It developed their skills to lead and manage the change in their schools. Senior teachers and supervisors were trained on methods of follow-up and support for teachers as they made these changes in their classrooms. They also learned how to support teachers in their classrooms and to use the Standards-based Classroom Observation Protocol for Egypt (SCOPE), developed from the MOE Standards to monitor and improve teacher and student performance. TILO training enhanced the school management skills using methods for problem solving, conflict resolution, motivating and rewarding, and sustainability planning.

School, Idara and Muderiya leadership training covered the following topics:

1. Basic IT Skills
2. Leading Change
3. Building Strong School Management Teams
4. Roles and Responsibilities
5. Role of the Supervisor
6. Supporting Teachers through Collaboration
7. Assessment
8. Classroom Observation (using SCOPE)
9. Providing Constructive Feedback
10. Motivating and Rewarding Change
11. Sustainability Planning and School Technology Advanced Management Plan (STAMP)

Master Teachers and School Supervisors Training TILO trained five Master Teachers and three Senior Teachers from each school covering the core subjects--Arabic, Social Studies, Math, Science and English. Master teachers and senior teachers from two or three schools were clustered together and trained in one of their schools. The TILO training cycle lasted 8-10 months, allowing time for Master Teachers, Senior Teachers, and Supervisors to learn, practice, reflect on and improve teaching practice in their classrooms. Clustering allowed teachers to share their experiences, learning and lesson plans with their colleagues, building a community of learners. The length of the training cycle also allowed TILO to integrate sufficient days of classroom follow-up to support teachers as they changed their teaching practice and integrated what they learned in the training room into their classrooms. The TILO Support Team conducted the follow-up activities in partnership with the senior teachers and school supervisors.

TILO trained teachers and Senior Teachers on how to use student-centered learning methods promoting critical thinking and problem solving in their classrooms. Teachers were trained to use authentic assessment and classroom management strategies to assess and manage their students. Teachers were trained to integrate technology into their lessons and student activities. Each training workshop was followed by a number of days of classroom support to help the teachers implement what they had learned with the students in their classroom.

Each level of the training was followed by an assessment of teaching practice in the classrooms. These new teaching methods were observed using the Standards-based Classroom Observation Protocol for Egypt (SCOPE). Teachers who demonstrated their use of effective teaching methods were trained to be Trainers and to pass these new teaching methods on to other teachers and supervisors through participating in Train-the-Trainer trainings.

TILO Training for master teachers and school supervisors covered the following topics:

1. Basic IT Skills
2. Effective Teaching Methods I
 - Student Centered Learning
 - Classroom Management
 - Critical Thinking- Level I
3. Effective Teaching Methods II
 - Critical Thinking – Level II
 - Problem Solving
 - Authentic Assessment

4. IT Integration
5. Training of Trainers
 - Adult Learner
 - Presentation Skills
 - Training Cycle

TILO Preparatory School Training

Training of TILO Prep School Trainers: TILO provided the following Training-of-Trainers (TOT) sessions to MOE leadership trainers to develop their capacity to deliver the leadership training modules to school administrators, senior teachers, and supervisors:

1. Leading Change
2. Building a Strong School Management Team
3. Motivating and Rewarding Change
4. Planning Sustainability and a School Technology Advanced Management Plan (STAMP)

Following the Training-of-Trainers sessions, TILO trainers worked in partnership with the MOE leadership trainers, coaching and mentoring them to deliver leadership training to the leadership of other Preparatory schools.

TILO also provided Training-of-Trainers sessions to MOE supervisory trainers to build their capacity to deliver the supervisory training modules to the MOE senior teachers and supervisors:

5. Roles and Responsibilities
 - Role of the Supervisor
 - Supporting Teachers through Collaboration
6. Assessment
 - Classroom Observation (SCOPE)
 - Providing Constructive Feedback

Training of MOE Supervisory Trainers: Following the Training-of-Trainers sessions, TILO trainers worked in partnership with the MOE supervisory trainers, coaching and mentoring them to deliver the supervisory training to the Senior Teachers and MOE Supervisors supporting the TILO Preparatory schools.

TILO also provided the following Training-of-Trainers sessions to MOE teacher trainers to build their capacity to deliver the teacher training modules to the teachers, Senior Teachers and MOE Supervisors at TILO Preparatory schools:

1. Effective Teaching Methods I
 - Student Centered Learning
 - Classroom Management

- Critical Thinking--Level I
- 2. Effective Teaching Methods II
 - Critical Thinking--Level II
 - Problem Solving
 - Authentic Assessment
- 3. Training of Trainers
 - Adult Learner
 - Presentation Skills
 - Training Cycle



MOE Teacher Training on the TILO model in Cairo

Training of MOE Teacher Trainers: Following the Training-of-Trainers sessions, TILO trainers worked in partnership with the MOE teacher trainers, coaching and mentoring them to deliver the teacher training to the TILO Preparatory school teachers, Senior Teachers, and MOE Supervisors.

TILO also provided the following Training-of-Trainers sessions to MOE IT trainers to build their capacity to deliver the IT training modules:

1. ICT Skills for Administrators
2. ICT Integration for Teachers

Training of MOE IT Trainers: Following the Training-of-Trainers sessions, TILO trainers worked in partnership with the MOE IT trainers, coaching and mentoring them to deliver IT

training to the TILO Preparatory school teachers, Senior Teachers, school administrators and MOE Supervisors.

Differences among the Trainings for School-Based Reform (SBR) Schools, TILO Preparatory Schools, and TILO Smart Schools (TSS)

TILO training was implemented in a decentralized way in a total of nine governorates. The SBR primary and prep trainings were implemented in 7 governorates: Cairo, Alex, Fayoum, Beni Suef, Qena, Minya and Aswan, and the TSS trainings were implemented in 6 governorates: Alexandria, Fayoum, Beni Suef, Greater Cairo, Giza, Assiut. Teacher training was delivered in the schools and leadership training was delivered in a location central to the school cluster. The training materials and digital resources were customized to meet the particular needs of the School-Based Reform (SBR) Schools, TSS and TILO Preparatory Schools. The customization included the use of a variety of lesson plans and TILO digital resources that were linked directly to the Egyptian curriculum and met the needs of the primary and preparatory students. For example, the customized training and digital resources included a focus on teaching vocabulary for science and math in the TSS schools in contrast to the School-Based Reform (SBR) schools. In addition, the customization addressed the needs of different subjects such as math, science, English, Arabic, and social studies. The components of the digital resources package were carefully selected and integrated into these lesson plans to facilitate student knowledge construction and skills development. Training and digital resources also improved the explanation of difficult components of the curriculum.

1.2.2 Lessons Learned from the TILO Training Model

The following lessons learned pertain to the TILO training model in Primary SBR schools, TILO Smart Schools (TSS) as well as TILO Prep Schools. These lessons learned from the TILO team in different governorates were categorized into three groups: positives, challenges, and recommendations.

Positives

- Training materials were useful and met the trainees' needs.
- Training delivery was logically scheduled and integrated to develop the complete model.
- Excellent selection criteria and choice of the trainees.
- Development of trainees professionally in a way that changed their lives and inspired them to lead the change in their schools.
- The practical implementation of the lesson plans during the trainings helped model the use of effective teaching methods to teachers.
- The cascade model used to deliver the training developed the MOE trainers' capacity and enabled them to expand the training in their schools and in other schools.
- Involving the different Idara/Muderiya teams helped develop their skills and activate their roles supporting the schools.
- Assessing the different components of the training model on a regular basis and making required changes improved the results.

- Realistic implementation of the training model: delivering the training at the participating schools or the MOE training facilities and using simple resources that teachers can easily find in their environment. Conducting the training in schools close to the teachers' classrooms to establish the culture of professional development within the schools.
- The strong buy-in from participating schools: their support of the preparation of TILO training room at their schools, the activation of the training units at the schools and the selection of the TILO team members inside the schools based on their willingness to support change in their schools.
- Conducting the Training-of-Trainers workshop and helping teachers develop their portfolios to be accredited by the Professional Academy of Teachers (PAT) encouraged teachers to develop as trainers.
- Accrediting the training materials from the Professional Academy of Teachers (PAT) to sustain the successful schools in the project and to use across the MOE.

"I was happy to see that the implementation of the TILO Training Workshop achieved the desired goals and activated the integration of technology, information and communication in the educational process. I declare that the effort made respect and appreciate all the trainers and supervisors on the project, which achieved a better performance in school and led the school to receive accreditation."

Director of Planning and Monitoring, Yehia Abdel Motaleb and
General Director of Education, Ebied Abdel Sattar – Nagaa Hammady, Qena Governorate

Challenges

- For the primary schools, TILO trained the MOE officials after training the teachers, which led to some officials not fully understanding the model and not being able to support the teachers.
- During the first phase of implementation for the SBR and TSS schools, the IT labs were not ready before the start of the trainings, which made it difficult for teachers to practice the use of technology in good time. This was corrected during the second phase of the implementation.
- Not including behavior management in the classroom management training. This may have contributed to some resistance to change by some supervisors and school administrators, such as resistance to the electronic preparation of lesson plans, using the student-centered approach, students working in groups or active learning.
- The overcrowded classrooms and small number of teachers in some schools made choosing the trainees, training them and taking them out of their schools quite difficult.
- Some schools were located in very remote areas, making them difficult to access.
- The challenging situation in Egypt during and after the Revolution and the resultant changes in MOE officials in Muderiyas, Idaras and schools.
- At the start of the project, there was a gap in communication between the subject matter experts, the supervisors and the schools, and a lack of connection among the schools, Idaras and Muderiyas. After TILO interventions, different departments began to understand the TILO model and became more supportive of schools.

- The low efficiency of the MOE computer labs at the preparatory schools that were updated and had TILO programs downloaded on them in certain governorates, hindering the students' use of them.
- The list of TSS schools provided to the project resulted in a large number of TILO Idaras in Cairo, which were widely spread out. This caused a strain on TILO program staff as well as MOE officials to regularly access and monitor the implementation in these schools efficiently.
- Delivering training after school hours conflicted with teachers' private lessons, which created some resistance.

Recommendations to USAID and MOE

At the School Level

- Choose schools with strong leadership and develop the school administrators professionally before training the teachers.
- Prepare the computer labs and install the digital resource package in sufficient time before starting the training to maximize the school's benefits from the training.
- Conduct the trainings at the end of the school day or during school vacations.
- Conduct the community outreach activities in new schools to enhance the school connection with the community.
- Decrease the number of targeted schools to increase the focus on teaching performance and follow-up inside the classrooms.

At the Idaras/Muderiya Level

- It is important to ensure that MOE officials and subject matter experts receive training before the teachers, so that they are fully able to support the teacher training activities.
- Emphasis on the important roles of the Idaras and Muderiya from the beginning of the project.
- Build the training capacity inside the Idara and the Muderiya (middle management) at the same time at the beginning of the project.
- Work closely with the Quality Assurance and Follow-Up departments at the MOE to improve teaching practice.
- Organize workshops for subject matter experts and supervisors at the Idara and Muderiya levels to help them understand TILO training strategies.
- Train the board of trustees at the Idara and Muderiya levels from the beginning of the project to facilitate community support to the schools.
- Establish training centers to institutionalize the TILO training model in the Idaras.
- Spread the TILO training model across the MOE and implement the model in non-TILO schools.
- Participating Idaras and Muderiyas are recommended to issue a decree once the training starts to keep teachers at their schools and stop them from moving away from the school until the project is completely implemented.

At the Central MOE Level

- Accredite the teachers as trainers from the Professional Academy of Teachers (PAT) to motivate them and to benefit from their experience as trainers. This was done in part for TILO trainers over the course of the project and it is recommended that future projects continue this process.
- Create a database of all the TILO participants with developed capacity and use them to expand the project initiatives across the MOE.
- Accredite TILO training material from the Professional Academy of Teachers (PAT).
- Support the MOE in designing a training, follow-up and support plan to expand and institutionalize the TILO model.
- Include TILO training programs as part of the MOE strategic training plan.
- Organize follow-up and support visits for the MOE training officials to the governorates to support the training departments in the Muderiya as and Idaras.

Summary of Results

TILO training has had a significant impact on the way teachers teach in their classrooms and students learn. Students are engaged in their learning, solving problems using higher levels of critical thinking. School administrators are supporting these positive changes and are organizing, initiating and supporting the expansion of these teaching methods into all of their classrooms. Parents and school communities are connecting with their schools and showing more interest and supporting positive changes in their schools. Idaras and Muderiyas are recognizing the positive changes in TILO schools and are expanding the TILO model to more schools.

Schools, teachers, school administrators, Idaras, Muderiyas and central MOE now own the TILO model. They have training modules, technology models, digital resources and the capacity to support and expand the TILO Model to more classrooms throughout Egypt.

“I was always asleep. I wasn’t willing to work because I thought it was useless. But when my colleagues trained me and I found computers to be available in the school, I wanted to give it a try. Students were very happy and their responsiveness encouraged me. The students liked me when they sensed my love for teaching them. Now my students are winners of the Microsoft Junior Programmer contest.”

Mohamed Rady, Teacher trained by TILO Master Teachers in a TILO school, A; Tahrir primary school – Beni Suef



A student in Fayoum Governorate writing about her experience using technology in school.

1.2.2 TILO Follow-Up and Support

Objectives of TILO Follow-up and Support

The TILO training team designed and developed the TILO Training Follow-Up and Support Plan. The goals of the plan were to:

- Move TILO schools towards self-sustainability.
- Support TILO Idaras to institutionalize the TILO model in their schools.
- Where there is sufficient interest, expand the TILO model to include additional non-TILO schools.

The TILO Follow-Up and Support program identified and addressed the needs of each TILO school, enabling them to move towards self-sustainability and providing the necessary support at the Muderiya and Idara levels to institutionalize the TILO model.

TILO Training Follow-Up and Support Plan and Tools

The design and development of the TILO Follow-Up and Support Plan included an analysis of each of the TILO Training Modules. Their demonstrated outcomes were placed on a developmental spectrum of stages from Training through to Institutionalization. Following these stages both at the school and Idara levels enabled TILO to efficiently allocate its training support resources. In turn, that enabled TILO to maximize the benefits of follow-up and support in schools and to involve the MOE team in this process to assure sustainability.

1. **Training Delivery** Training was delivered by TILO Master Trainers. The analysis of this stage identified the expected outcomes of each training component at the time of training delivery.
2. **Support** During this stage, teachers received direct support from TILO Master Trainers, TILO Multi-Taskers, Senior Teachers and the school administrators to support, monitor and assess their application of effective teaching methods and the integration of technology in their classrooms.
3. **Follow-Up** School administrators, Senior Teachers, the MOE Supervisors and Idara took the lead to provide ongoing support to their teachers. Both TILO Master Trainers and TILO Multi-Taskers intervened when needed.
4. **Monitoring** Follow-up and support was provided primarily by the Idara and Muderiya, involving all of their departments. TILO built their capacity to provide follow-up and support, thus increasing their chances for sustainability.
5. **Sustaining** Follow-up and support was provided completely by school administrators, senior teachers, and the Idaras and Muderiyas.
6. **Institutionalization** Idaras and Muderiyas developed their individual Expansion Plans to extend the TILO model to non-TILO schools. These plans delineated activities and tasks, roles and responsibilities, methods and tools.

TILO Training Follow-Up and Support Tools

The Training Follow-Up and Support Tools enabled the MOE at the Muderiya and Idara levels, the Technology Development Center(s) (TDC), school administrators and MOE Follow-Up and Support Teams to understand their roles and their tasks to provide follow-up and support to the schools, leading them to sustainability and leading the Idara to institutionalization. The following tools provided them with the feedback documents expected from each school at every stage their due dates.

- TILO Training Follow-Up and Support
- TILO Training Follow-Up and Support Stages
- TILO Training Follow-Up and Support Development Spectrum
- TILO Training Follow-Up and Support School Intervention Plan
- TILO Training Follow-Up and Support School Visits Register
- TILO Training Follow-Up and Support Improvement Plan
- TILO Training Follow-Up and Support Final School Status Report

TILO Training Follow-Up and Support Process

1. A TILO Follow-Up and Support Team was designated to plan and implement follow-up and support activities.
2. The TILO Follow-Up and Support Team developed the TILO Training Follow-Up and Support Plan and Tools.
3. TILO conducted a four-day focus group workshop with all TILO Senior Master Trainers, Follow-Up and Support Teams, and TILO Governorate Team Leaders to introduce the Follow-Up and Support Plan and Tools and discuss how they could be used effectively.

4. TILO partnered with Senior Teachers and MOE Supervisors to use the SCOPE classroom observation tool effectively in their classroom visits to support and guide the teachers to use and sustain effective teaching practices and to integrate technology in their classrooms.
5. To coordinate the implementation of the Follow-Up and Support Plan in collaboration with the Undersecretaries and Director Generals at the Muderiya and Idara levels, TILO teams held a series of meetings with the Heads of Technology Development Center(s) (TDC), Technical Follow-Up and Support Units, Quality Accreditation Units and Training Units in addition to TILO school principals and the General Inspectors and MOE Supervisors.
6. The TILO team communicated the Follow-Up and Support Plan to the Muderiyas and Idaras and collaborated with them to help schools overcome the challenges they were encountering.
7. After identifying the schools levels of priority, follow-up and support activities were implemented to support Priority One--Weak schools and Priority Two—Moderate schools to move towards a rating of Priority Three—Excellent.
8. The TILO team focused their school visits on supporting school leadership to apply and sustain TILO activities by implementing their School Technology Advanced Management Plans (STAMP). In addition, TILO supported classroom teachers to implement effective teaching methods and to integrate the use of technology and TILO digital resources into their teaching practice.
9. Based on the Follow-Up and Support visits and evaluation of school performance, a Follow-Up and Support Intervention plan was created for each school outlining what should be done after each training component, what had been achieved and what not and at what stage the school was performing. The plan included recommendations for actions to be taken by at the school, Idara and Muderiya levels.
10. During their Follow-Up and Support visits, the TILO Follow-Up and Support Team worked side-by-side with the school Follow-Up and Support Teams and the Subject Matter Supervisors to build their capacity to take over the roles and responsibilities of the TILO Follow-Up and Support Team.
11. Each school visit was recorded in a school register and given to the school principal and TILO team to see what went well and what needed to be improved with a suggested timeline and personnel.
12. The TILO team updated the Intervention Plans at the end of each month and sent them to the TILO Follow-Up and Support office in Cairo for modification, updating and documentation.
13. Each month, the TILO team in each governorate, including the Team Leaders, met to communicate any issues and to exchange ideas and strategies on how to deal with these issues. The Intervention Plans were discussed and updated according to the new level of performance of each school and the outcomes of the Follow-Up and Support Plans in order to prepare a new and updated Intervention Plan for the next month for each school.
14. TILO formed a team of “Multi-Taskers” to provide follow-up and support in coordination with the Master Trainers.
15. At the end of the Follow-Up and Support Plan activities, School Status Reports were prepared and workshops were held in each governorate to review and revise the reports. This was done as part of the TILO exit strategy at the governorates and in order to

sustain the follow-up support within TILO schools. The participants from each Idara and Muderiya involved in the follow-up and support in TILO schools revised and agreed upon the content of the reports and added their input. Subsequently, the reports were sent back to the Follow-Up and Support Office in Cairo for final editing and formatting. A final School Status Report was prepared for each school, sent to the Muderiyas and then formally delivered to each school through their Idaras.

Results of Training Follow-Up and Support

- The TILO team carried out approximately 1,890 follow-up and support visits to the SBR and TSS schools and about 1,134 visits to the 127 Prep Schools.
- The MOE formed Follow-Up and Support Committees at the Muderiya level to provide follow-up and support to TILO schools. Currently, the Idaras each have their own Follow-Up and Support Plans and have begun to provide support to TILO schools independently.
- TILO built the capacity of more than 1,000 Supervisors in the TILO governorates to help in conducting follow-up and support to TILO schools. The MOE at the Idara and Muderiya levels worked in partnership with TILO, thus building the sustainability of school improvement results and likelihood of future expansion in their sectors.
- Analysis of the TSS and School Based Reform (SBR) school levels of development at the beginning of the Follow-Up and Support Plan identified 67 Priority One “Weak schools”, 99 Priority Two “Moderate schools”, and 52 Priority Three “Excellent schools”. The Follow-Up and Support Team created an intervention plan for every school to support them in moving towards sustainability.
- At the end of the implementation of TSS and SBR School Follow-Up and Support plans in December 2011, only 33 schools remained in Priority One--Weak, 90 schools remained in Priority Two--Moderate, and 95 were in Priority Three--Excellent.
- Analysis of the 127 Extension Prep School levels at the beginning of the Follow-Up and Support Plan identified 33 Priority One--Weak, 65 Priority Two--Moderate, and 29 Priority Three—Excellent schools. The Follow-Up and Support Team created an intervention plan for each school to support them to move towards sustainability.
- At the end of the Extension Prep School Follow-Up and Support Plan in January 2013, only 17 schools remained in Priority One--Weak, 69 in Priority Two--Moderate, and 41 in Priority Three—Excellent.

Lessons Learned from TILO Training Follow-Up and Support

- Implementing a systematic approach of follow-up and support with well-documented frequent visits enabled schools to move along the development spectrum towards sustainability.
- Partnering the TILO Follow-Up and Support Team with teams from the Idaras, made up of people from various leadership levels, built the capacity of each Idara to continue to provide follow-up and support after the end of the TILO project.
- Designing standardized, integrated and user-friendly Follow-Up and Support Plans and Tools enabled all team members to understand and use them.

- ❑ Data gathered using these tools could be analyzed easily and used by schools for self-improvement and by Idaras and Muderiyas for the comparison of schools.
- ❑ Holding monthly Follow-Up and Support meetings gave the TILO Team a regular opportunity to review and revise their Follow-Up and Support Plans. The Follow-Up and Support Plan helped identify the levels of school performance effectively and addressed school issues and challenges.
- ❑ Monthly updates of their Intervention Plans provided schools with needed support in a timely manner.
- ❑ Carrying out the follow-up and support directly after each training component was important in helping teachers receive timely support.
- ❑ Effective coordination between the Multi-Taskers and the Master Trainers in scheduling the visits to schools needing urgent intervention helped to overcome the challenges that arose during Follow-Up and Support visits to schools.
- ❑ Creating an effective communication network among the various departments of MOE and the TILO Follow-Up and Support Team helped to carry out successful follow-up and support in schools.
- ❑ Dividing the schools into priority levels and providing them with appropriate support was effective in moving schools from a lower level of performance to a higher one.
- ❑ Creating the Follow-Up and Support School Visit Register form to document school visits facilitated the tracking of the progress of each school.
- ❑ Documenting Follow-Up Visits and creating a record for measuring the level of change of the schools provided valuable data and gave the TILO project credibility and transparency.
- ❑ Helping Senior Teachers to make Teacher Performance Improvement Plans based on the results of SCOPE during their class visits helped teachers perform better.
- ❑ SCOPE as a tool in the Follow-Up Class Visits focused teacher attention on practices in their classroom.
- ❑ Conducting sustainability workshops in the governorates to review the final school status reports helped to transfer responsibilities for follow-up and support to the MOE for planning and implementation of future follow-up and support.

Recommendations to MOE

Based on lessons learned, the following recommendations are made to the MOE to sustain and expand the TILO Follow-Up and Support Plan:

- ❑ Ensure that strong school administration is one of the main criteria in choosing the new schools applying to be a TILO school.
- ❑ Continue to assess and support schools by classifying them into priority levels, forming a starting point for effective follow-up for both the schools and the Idara and Muderiya Follow-Up and Support Teams.
- ❑ Idaras and Muderiyas should create special Follow-Up and Support units to follow-up in TILO and expansion schools. Integrate the follow-up in TILO schools into the MOE Follow-Up Plan of the Inspection Unit.

- Formally accredit the TILO Follow-Up and Support Plan in order to institutionalize the Plan and its Tools. Use TILO Follow-Up and Support Tools in Idaras as a guide when providing follow-up and support in schools.
- Have the Idara and Muderiya Follow-Up and Support Teams create School Intervention Plans as tools for identifying and resolving the problems that face each school.
- Analyze TILO Follow-Up and Support Reports at the Idara and Muderiya levels. Forward them to the Subject Supervisors and the implementing departments as a reference while they plan for Follow-Up and Support Visits to the schools.
- Ensure that the Follow-Up and Support Teams from different departments hold periodic meetings and orientation workshops to review the follow-up and support process, to update the Follow-Up and Support Plans and to build the capacity of the novice members.
- Ensure that teachers in schools make use of the weekly staff meetings for each subject to discuss the Follow-Up Results and Plans.
- Activate the role of the Quality Assurance Department in the Idaras and Muderiyas to provide follow-up and support. Activate the role of the Quality Assurance Department in the follow-up process.
- Ensure the effective use of SCOPE as a Follow-Up and Support Tool by the MOE Follow-Up and Support Teams, particularly by the subject supervisors.
- Support the use of e-SCOPE, similar to its application in Fayoum, in conducting classroom observations in all governorates.
- Activate cooperation and coordination among the Centre for Curriculum and Instructional Materials Development (CCIMD), the National Center for Exams, the Center for Education Research and Ministry Advisors to enable a valid evaluation of schools based on TILO Follow-Up and Support Plan input and outcomes.
- Ensure coordination to distribute trained TILO-school supervisors to provide the follow-up in the Idaras, and supervisors follow up effectively and motivate teachers to integrate digital resources in their teaching.
- Ensure that the Idara and Muderiya senior officers provide needed support to the supervisors who are tasked with providing follow-up and support in TILO schools.
- Ensure communication between Technology Development Center(s) (TDC) and technical supervision to support the schools according to the follow-up and assessment results.
- Send a list of names of teachers and supervisors trained by TILO to the Head of Public Education Sector to include in the MOE's database for Trainers and Supervisors at the national level so all can benefit from these educators' skills and extensive experience in the future.
- Provide directions and recommend that the MOE issues decrees that supervisors, teachers and school administrators trained by TILO be retained in their schools and Idaras until each of their schools has reached sustainability and TILO has been institutionalized through their Idara.
- Mandate that Technology Development Center(s) (TDC) maintains software and operations and activates the use of technology in teaching and learning.



School visit in Aswan Governorate with USAID Education Team

1.3 TILO Technology Models

In 2006, the Egyptian MOE established a five-year National Strategic Plan that outlined the components of school reform, including a strategic framework for ICTs for education. The main purpose of installing ICT equipment in TILO schools was to integrate technology tools into classroom lessons to improve teaching practices and learners' critical thinking skills. The key strategy for achieving this purpose was to introduce a TILO Technology Model as an ICT tool that could assist and support teachers in teaching their curriculum.

The model proposed in the initial TILO design was the starting point for project interventions, but the model has evolved based on experience, opportunities, and constraints. TILO moved away from the proposed “star” configuration that was described in the MOE strategic plan and was considered on the original proposal. Instead, TILO moved to one that was more likely to get ICT to classroom teachers, was more practical to implement and was better suited to address the distinction between School Based Reform (SBR) schools and TILO Smart Schools (TSS). The project emerged from the challenging process of competitive procurement with a configuration of hardware that permitted use of the extensive collection of TILO Digital Resources while, at the same time, limiting the equipment to a scale that schools could handle. Based on the experience of its predecessor project, Partners for a Competitive Egypt (PfCE) and experience in other countries, TILO did not fall prey to overwhelming schools with technology. TILO has taken the time to pilot and modify the hardware packages going into various school settings.

TILO worked with the MOE and Ministry of Communications and Information Technology (MCIT) to experiment with and build a simple Technology Model that moves schools ahead towards the goals of the National Strategic Plan. A Technology Model was needed both to support Egypt's reform agenda and to demonstrate ways that technology can be used to improve teaching and learning.

TILO worked with three types of schools--Experimental preparatory schools to be transformed into TILO Smart Schools (TSS) as well as primary and preparatory schools undergoing School Based Reform (SBR).

The project's scope was the same for both School Based Reform schools (SBR) and TILO Smart Schools (TSS). One of TILO's objectives was to work with the MOE to support a decentralized reform-based system in which schools were selected to participate based on certain criteria and then trained in ways to use technology for pedagogical purposes. In addition, TILO committed to include a plan to manage the technology at the school level into the local school improvement plans. TILO knew from experience that schools need help in getting technical support from local sources instead of waiting for a chain of requests and approvals to flow through the MOE. TILO worked with the decentralized MOE Technology Development Center (TDC), helping it to plan and allocate technology support among schools and to keep abreast of maintenance needs.

TILO completed its Model by providing continuous support and follow-up during the lifetime of the project and conducting capacity building for the MOE technical staff so they would be able to sustain TILO schools after the end of the project.

There is appropriate variation in the Technology Models between the School Based Reform (SBR) and TILO Smart Schools (TSS) based on the grade level expectations, language of instruction and other characteristics related to the initiatives.

Summary of ICT Needs Assessments

The TILO Technical Team had extensive experience from other educational-technology projects. Consequently, staff was able to draw upon those experiences to implement best practices and apply the lessons learned from previous projects. TILO was committed to learn and incorporate the lessons learned from other government, donor and private-sector initiatives.

TILO worked on different components of the project to reach its effective Technology Model.

First Component The TILO team carefully studied the strategic plan of the MOE and MCIT in order to identify their requirements and the technical specifications that would support the MOE National Strategic Plan and the National ICT Strategy.

Over the past decade, Egypt has engaged in many new initiatives that utilize technology for education e.g., the EU 1000+ schools project, the Egypt Education Initiative (EEI), the original Smart School Initiative, the Susan Mubarak Initiative; and many lessons were learned that informed the TILO Technology Model, procurement plan and project support efforts.

TILO conducted an assessment of the experiences of the Smart School Initiative from 2002-2008. TILO developed an improved TILO Smart School (TSS) model that responded to the technical and programmatic challenges previously experienced and took into consideration the advances being made in technology.

Second Component Since training was fundamental to the success of TILO, the TILO technical team had several meetings with the training team to understand the whole cycle of the training model and the needs of the training team. One of TILO’s primary goals was to have technology installed and ready for use in advance of participants receiving the TILO IT integration training. This required careful planning and close follow-up with vendors.

Third Component The Digital Resource (DR) collection offered as part of the TILO project evolved over the course of the project. The fundamental characteristic of the collection was that resources could be used offline since Internet connectivity in all school districts was not available. Most resources were free to the public. The challenge was to make sure and confirm that all applications were running efficiently on TILO or MOE equipment.

Fourth Component The TILO team included sustainability after the lifetime of the project as an important goal.

After working on these different components, TILO created a simplified Technology Model that would cover the objectives to provide:

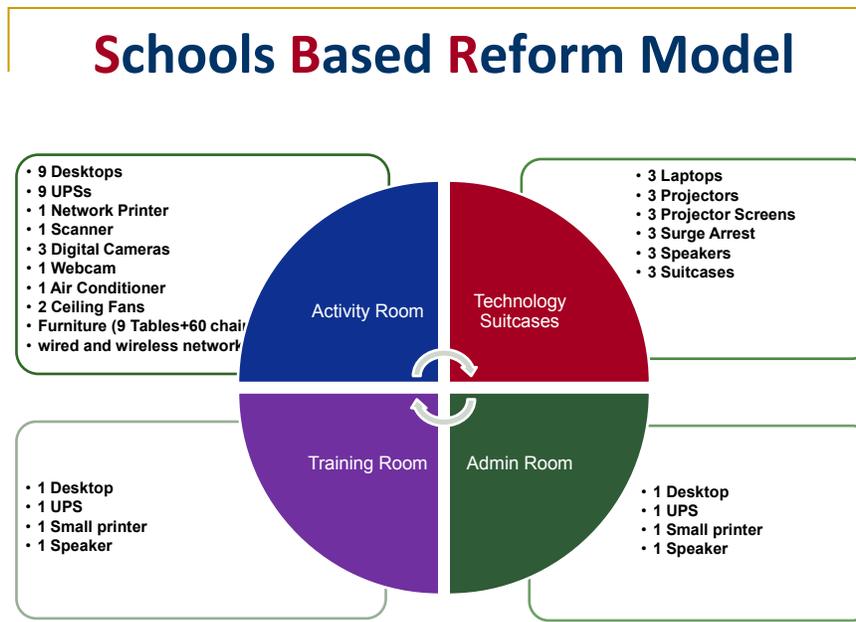
- A Model that could be implemented in TILO schools and aligned with the MOE to meet their long-term goals for the enhancement of school performance as outlined in the “MOE Strategic 5-Year Plan for the Reform of Pre-University Education.”
- Equipment that met and/or exceeded the technical requirements and the goals of the government.
- A Technology Model that could be sustained by the school and be replicated in other schools by the MOE
- A Technology Model that should not require high technical skills at the school level or the TDC. Also, the model should not require advanced school technology infrastructure, thereby making it easier to implement in high-need areas, which in turn ensured the long-term stability of the project.
- A variety of TILO technologies to meet different levels of need and ensure that teachers, students and school management had opportunities to use the tools in different capacities both in and out of the classroom.
- At least nine student computers and a computer for teachers in each TILO Activity Lab, meeting the goal of having nine student computers in each school.
- ICT Suitcases to meet the goal of having a mobile technology “trolley” in schools, so that a portable computer could be available for classroom use.

1.3.1 School Based Reform (SBR) Primary Technology Model:

The TILO School Based Reform (SBR) component covered 192 public primary schools that had been selected through a criteria-driven selection process (See Section 1.1 of this report for details about the selection process). The TILO School Based Reform (SBR) primary schools are located in 7 governorates: Alexandria, Cairo, Beni Suef, Fayoum, Minya, Aswan and Qena. The School Based Reform (SBR) Technology Model was created for a younger Arabic-speaking audience and includes the following:

- TILO Activity / Computer lab
- Computers for Teachers’ room

- Computers for administrators
- Portable “IT Suitcases” (laptop and data show, digital camera)
- Software and Digital Resources
- Other innovative technologies, such as interactive whiteboards
- Internet connectivity, wherever possible



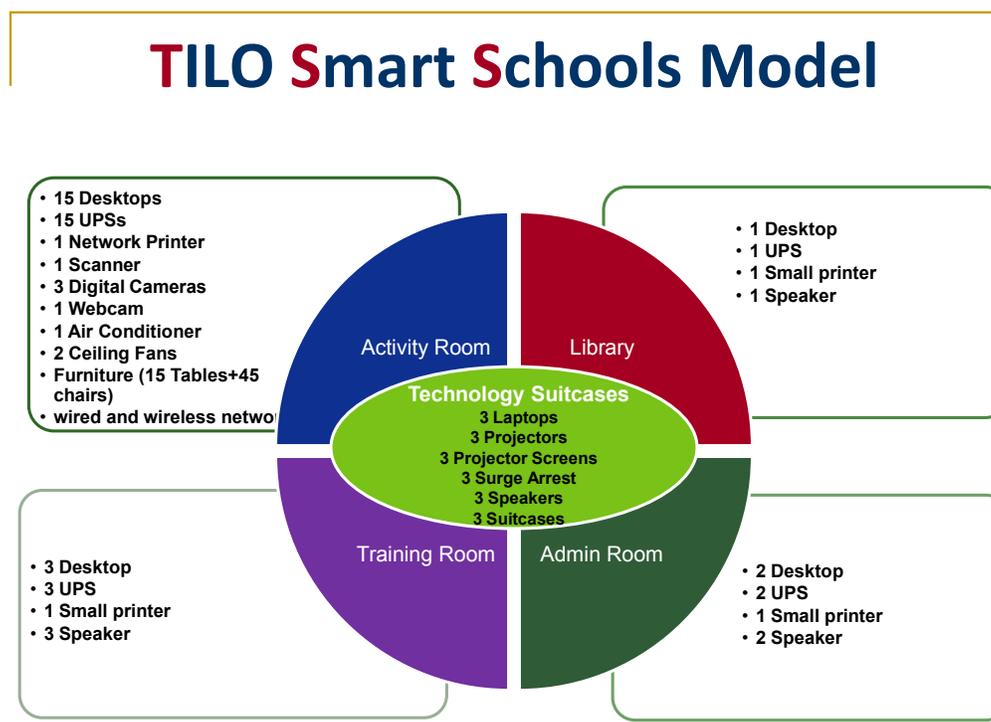
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1.3.2 TILO Smart Schools (TSS) Technology Model:

The TILO Smart Schools (TSS) component covered 85 public experimental schools at the prep level to be converted to TILO Smart Schools (TSS). These schools were selected jointly by the MOE and the Ministry of Communication and Information Technology (MCIT) for participation. The 85 schools are located in 6 governorates: Greater Cairo, Giza, Alexandria, Fayoum, Beni Suef and Assiut. This model was created for a prep-level English-speaking (and learning) audience and was equipped with the following:

- TILO Activity/Computer lab
- Computers for Teachers’ room
- Computers for administrators
- Computers in the school library
- Portable “IT Suitcases” (laptop and data show, digital camera)
- Software and Digital Resources
- Internet connectivity, wherever possible

TILO provided computers and a combination of wired and wireless access in the TILO Smart Schools (TSS) schools. Computers were provided for a student Activity Room, a room for teacher preparation work, a room for the school administration and the library.



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Implementation Strategy

After outlining the general makeup of the models, the next task was to establish technical specifications, quality and standards for the different pieces of the Technology Model in order to guarantee efficiency of usage and implementation to ensure the success of the project.

Tasked to work across nine governorates overall for the SBR and TSS schools, TILO agreed to implement the project in two phases, with the first phase covering Alexandria, Cairo, Giza, and Beni Suef governorates. The objective was to focus on the nearest governorates during the first phase, so the team could provide quick technical assistance, assess the integration of the different project components and have the chance to adjust and change the TILO model before moving forward with the remaining governorates in the second phase (Fayoum, Minya, Assiut, Qena and Aswan).

TILO procured equipment based on these two phases, with two large technology procurements in September 2008 and December 2009. These phases were designed so that the technology was received and installed by vendors right before training and follow-up.

Implementation Process

School selection TILO conducted a criteria-based school selection process for School Based Reform (SBR) primary schools at the local level to select schools with the basic physical readiness factors necessary to handle the technology and use it effectively for teaching and learning. The TILO technical team, in collaboration with vendors, confirmed the requirements needed for the successful implementation of the Technology Model.

Specifying Standards and Requirements Technical standards and project requirements were needed to ensure the implementation of an integrated technology system that would achieve the project objectives. TILO was committed to:

- Develop accurate, realistic technical specifications to ensure the success of the project;
- Develop technical evaluation criteria to allow the selection of the best technical solution;
- Provide a follow-up system and technical support within the schools to ensure quality;
- Provide training for the MOE technical staff at the school, Idara levels and governorates to support schools and ensure sustainability;
- Guarantee a trouble-shooting system to provide quick response to maintenance problems;
- Provide three-year warranties for all equipment and devices with the possibility of renewal;
- Guarantee a supervision and follow-up system on all work carried out in schools.

RFP Requests for Proposals (RFPs) specified high standards, and requirements were transparent. Vendor responsibilities were detailed and clearly outlined to ensure that vendors understood them. In addition, vendors were held accountable for timely delivery, proper installation, maintenance and technical support in all the schools.

Creative released 8 RFPs for a total of \$8 million to purchase technical equipment, furniture, air conditioning and connectivity, through a set of competitive global tendering which best guaranteed the achievement of project objectives.

Installation and operation

Competent installation and operation of the ICT had a significant influence on achieving the project goals. The objective was to install and operate equipment and devices integrated with the training plans so that trainees could apply the effective use of technology in education in a practical and effective way.

Testing TILO Digital Resources on the different brands and types of equipment procured by TILO was necessary to guarantee easy access and use by participants.

Delivering equipment procured in accordance with the time schedules agreed upon faced many challenges and obstacles. The TILO team worked closely with the vendors to meet the committed timetable, resulting in successfully passing this critical stage. Delivery and installation of equipment within the promised timeframe added excellence and commitment to the credibility of the project with schools.

The TILO team realized the importance of documentation from the start and wanted to be transparent in sharing all technical information with the partners. Each school received a folder with the following documentation:

- ❑ Technical details and guidance that contained descriptions and explanations in Arabic for all technical equipment that has been supplied to the school;
- ❑ Step-by-step process on how to communicate technical problems, maintenance records and technical support for each school;
- ❑ Illustrated graph for the technical installations that were made at school;
- ❑ Copy of receipts of received school equipment;
- ❑ Copy of the final receiving receipts for the model after its completion;
- ❑ Program licenses along with individual school passwords.

TILO worked with schools to establish a tracking system that was a comprehensive method to manage and troubleshoot difficulties with equipment. This automated system enabled schools to monitor problems and vendor responses independently and allowed TILO to observe, monitor, track and solve problems. The tracking system also ensured vendor accountability.

School staff members were given comprehensive training conducted by both TILO and vendors. Weekly meetings were held with vendors to make sure that schedules were maintained and solutions to challenges forthcoming. Schools were also given extensive documentation of equipment and digital resources with Arabic-language operation manuals, ensuring that reference material was available to and accessible by the local community regardless of language preferences.



Students in Cairo Nozha School during a science class in a TILO lab.



Students in a TILO activity room in Alexandria Governorate

Follow-up and technical support

Another element of TILO that was key to its success was the insistence on providing support to schools to ensure sustainability during the project. According to the project tender, a system was established to provide monitoring and technical support according to specific documented timetables. A hotline was established by each vendor to receive maintenance calls from schools. TILO requested each school to submit a breakdown report and governorates to list all their operation problems and time taken to solve them.

TILO and vendors provided technical training to build the capacity of specialists, administrators and teachers from each school in addition to Technology Development Center (TDC) staff in supervising Idaras and Muderiyas. These trainings were carried out in schools for four days to enable the team of each school to provide initial trouble-shooting support and to accurately report problems to vendors to ensure efficient system support. TILO hired one Technical Coordinator per governorate to oversee the installation and testing activities of the equipment and to coordinate technical issues between the vendors and the MOE. In addition, they were responsible for the technical follow-up in schools on a regular basis.

The periodic technical follow-up provided by the TILO Technical Coordinators from each governorate was done using a specific template created to ensure a clear picture of school status and the effective use of the different Technology Models. This form was shared with the school administration with the objective of clarifying and documenting the strengths and weaknesses of their school's technology support plan.

Internet Service The TILO team believed that internet connection is not a luxury for schools but is an essential tool for students to expose them to the open world to perform research, find information and learn about other cultures and civilizations.

The collection of TILO Digital Resources was primarily dependent on free digital resources and free educational software with the objective that schools would be able to search the internet and download additional free educational resources in the future. TILO was able to connect 239 out of 277 SBR primary and TSS schools to the internet, 208 via ADSL and 31 schools by 3G.

Interactive Whiteboard Model TILO provided interactive white boards to 30 primary schools. The model included training for those teachers on the appropriate and effective uses of interactive boards in teaching and learning.

INTEL Classmate PC Model Intel contributed over 1,300 Classmate PCs to TILO and TILO subsequently purchased an additional 200, making a total of 1,507. Mythware, the suite of software installed on Intel's Classmate PCs included educational software, security, and classroom management, e.g., timed quizzes, marked on display and programs for internet browsing. TILO tested these programs in a few schools and reported results to Intel, providing them feedback from on-the-ground testing.

Intel worked with the TILO technical team to integrate the TILO Digital Resources collection into the Intel Classmate PC suite. TILO was responsible for the entire implementation cycle, from testing to installation, as well as integrating the complete Technology Model in 66 schools across TILO governorates.

The Intel Classmate PC Model has been modified to accommodate the TILO model and TILO school requirements. The objective was to integrate the Classmate PC Model to serve as an additional TILO lab going directly to students in their classrooms. Part of the success of the Intel Classmate PC Model is that it followed the TILO cycle including training, follow up and support.

Intel provided additional training on how to use Intel applications available on each Classmate PC. TILO provided technical training to school and Idara teams on how to perform simple preventative maintenance and how to solve network problems. These training sessions took place inside the schools and included the Idara Technology Development Center (TDC) staff to ensure the continuity and sustainability of MOE's support to schools.



Students using newly installed Intel Classmates in Aswan primary school.

1.3.3 Preparatory School Model

As the project neared the completion of the implementation of interventions in the initial Primary and TSS schools, USAID received formal requests from different TILO governorates expressing the need to continue to integrate the TILO model in prep schools which will receive the TILO primary students. The requests were due to the risk of TILO primary students losing their educational advantage if they were forced to return to the old ways of teaching and learning in their prep schools.

USAID and the MOE, in consultation with the project team, found this request to be valid. TILO agreed to provide support and expand into the prep schools that students from TILO primary schools would be attending. TILO created a different Technology Model in which the MOE would take on more leadership in the implementation of the different phases.

What encouraged USAID and MOE to move forward with the TILO extension in preparatory schools was the many initiatives which had been taking place under the leadership of the MOE to expand the project model within the TILO Idaras to schools not affiliated with the project. Furthermore, MOE-led expansion was carried out by trained teachers working in the MOE who received training and had been coached by TILO in each governorate. This initiative had been a great success in some governorates and was a motivation for the project team to create a Prep School Model that would emphasize the institutionalization of the new Model within the MOE system.

The TILO Prep Model was a hands-on institutionalization effort, since expansion activities were undertaken by teachers and other MOE staff. Expansion in prep schools deserved separate attention, because the project was reaching far beyond its originally targeted number of schools

and teachers. The Prep Model used a cascade model of training through which teachers trained by TILO were responsible to train teachers in TILO Prep Schools while TILO Master Trainers coached and monitored them doing the training.

The MOE was responsible for selecting Prep schools based on the geographical locations of TILO primary schools. It was agreed with the MOE Technology Development Center to rely on the technology equipment already available in these schools. This limitation turned out to be a major challenge for TILO.

The project technical team was tasked to assess the equipment inside the schools and provide recommendations for memory upgrades needed to support the TILO Digital Resource collection. The team worked closely with the MOE Technology Development Center (TDC) staff to prepare the devices in targeted schools in readiness for training. The project also provided each prep school with a TILO Technology Suitcase and provided technical training to build the capacity of the MOE Technology Development Center (TDC) staff supervising the prep school labs.



A teacher and student using Google maps in a TILO lab

1.3.4 Building Capacity and Handover of Inventory

According to the project goal and objective to ensure continuity and sustainability in TILO schools after the closing of the project, building the capacity of Technology Development Center (TDC) teams across TILO governorates was a major commitment for the TILO technical team.

Towards the end of the project, TILO provided additional support to schools that requested refresher training on topics such as the use of the interactive white boards and the Intel Classmate PC. Due to lack of practice using these models, some schools requested reinforcement training to support sustainability. Accordingly, TILO designed one-day training sessions

provided by the TILO Technical Team targeting school teachers, lab coordinators and Technology Development Center (TDC) representatives.

TILO conducted several workshops to share lessons learned and best practices with the MOE Technology Development Center (TDC) staff at the central level. These workshops covered the following topics:

- Overall review of the project
- Explanation of the various TILO Technology Models
- Technical review of the most important challenges experienced by the project
- Sharing and discussing lesson learned
- Sharing and discussing important recommendations
- Discussing the potential mechanism for sustainability by the MOE Technology Development Centers (TDC) across the governorates

Handover and Disposition of TILO School Inventory

After the completion of the equipment installations in TILO schools, Creative requested USAID approval to formalize the transfer of this equipment to the MOE at the Governorate level, with approval from the Central MOE. The transfer made the MOE fully responsible for all the equipment.

A CD titled “TILO School Inventory” for school equipment provided during the life of the project was submitted to USAID with all details regarding the disposition of TILO inventory for the schools.

Documentation for each Governorate

As part of the handover process, a school inventory folder was handed over to the MOE at the Muderiya level to provide MOE leaders with all the necessary information about what TILO had accomplished and the resources available in their schools. The folder included a disposition letter and property-acceptance agreement to confirm that all the specified equipment had been handed over to the schools. TILO also handed over passwords for equipment in the schools to Technology Development Centers (TDC) Managers in every governorate and at the central MOE level.

As part of the completion of this handover process, TILO successfully provided the MOE with the documentation and information needed to sustain and continue maintaining TILO equipment.

Equipment Supplied to TILO Schools

The project supported 404 SBR primary, SBR prep and TSS schools with simple and efficient Technology Models to ensure continuity with a total of:

- 3,628 desktop computers
- 1,195 Laptop computers
- 982 technology suitcases
- 1,527 Intel classmate PCs

1.4 Digital Resource Development

The collection of digital resources offered as part of the larger TILO project grew in both numbers and kind over the course of the project. The usability and accessibility of chosen resources were assessed during trials with ICT-experienced teachers prior to acceptance for TILO. The fundamental characteristic of the collection is that resources can be used offline, since internet connectivity is not currently available in all school districts. Most resources are free to the public; however, when costs were associated with use, TILO negotiated a low cost license for schools within the project, and those costs were prepaid by TILO for lifetime licenses with no renewal fees. Most resources use both an English and Arabic interface or, minimally, offer a degree of Arabic language compatibility. Although the identification of and support development for appropriate digital resources was more demanding than anticipated, trainers reported that teachers were receptive to using technology in their teaching because of the choices and user-friendliness of the resources. Subject Matter Experts in the central MOE in Cairo fully supported both the training and the inclusion of TILO digital resources in classroom lessons in Egypt.

1.4.1 Digital Resource Strategy and Development

The TILO staff, including the Digital Resource Development Team, began their work with the belief that three conditions are necessary for technology to improve learning:

1. Appropriate technologies are available to teachers practicing effective teaching methods while being supported by peers, administrators and supervisors.
2. Technologies and resources are easily accessible by teachers and students both during and beyond class time.
3. Teachers are connected to how technology increases learning specifically in their areas of teaching at their grade level. Teachers understand how resources connect to their curriculum.

Teachers practicing effective teaching methods The first tenet, not always obvious to project designers, was well understood and planned for in TILO with a robust training program. While the Digital Resource Development Team contributed to the design of the teacher training for effective learning strategies, a very able team designed and delivered training to teachers, administrators, supervisors and MOE staff at the Muderiya and Idara levels. Peer support groups were formed to support teachers. The TILO team was confident that the teachers would be ready for the introduction to and effective inclusion of the technology resources that were developed.

Technologies easily accessible. Historically, technology placement in schools was based on where it could best be protected from anticipated damage and theft. That requisite led to the building of computer labs, usually overseen by a member of the school staff with interest in technology, accessible to teachers through sign-up ahead of time and locked at all other times. Computers were protected, their use was discouraged and administrators concluded that computers added little to their schools except cost and burden. Labs were used for teaching about computers but not with computers. This was not TILO's desired outcome. While Activity Rooms with desktop computers would be established and successfully used, they were not intended to be computer labs, and were used by teachers with their classes, small or large groups and for meetings where computers and projection were useful.

Specifications and budget for computers and supporting technologies were decided early in the project implementation due to the pressing timeline for supply and setup planning. The entire project team discussed various models of computer placement and use for the SBR schools, finally deciding on movable/accessible laptops where possible, combined with fixed desktop computers placed in areas such as activity rooms, training rooms, libraries and school offices. All computers, including desktops, were ready for wireless internet connection. The team included movable projection systems for classroom use. They also concluded that school-wide networks were not needed as they limited the placement and use of computers. They were aware that some of the schools had easy internet access but some currently had no access at all. The TILO model used in School Based Reform schools with portable/movable laptops would require justification to Idara and school administrators whose job it was to worry about damage and theft.

The specifications for locations of computers and supporting technologies for the TILO Smart Schools were limited by what had previously been specified by the Ministry of Communication and Information Technology (MCIT). TILO Smart Schools had 15 desktop computers in one Activity Room, 6 elsewhere in the schools and 3 laptops for use among the teachers in classrooms.

Appropriate digital resources developed. The primary task for the Digital Resource Development team, then, was to determine the appropriate resources and most effective strategies to connect Egyptian teachers to technology and to provide them with ongoing support. The TILO team also wanted these resources to be part of a growing collection of resources, including those created or identified by the Technology Development Centers (TDCs) in the MOE and the MCIT as well as resources identified by teachers themselves. All programs were tested by technology-proficient and practicing teachers, and only those found appropriate and effective were included. To enable teachers to understand how technology was connected to their curriculum, directions focused on educational use were written and typical classroom lessons were developed and tested in a sampling of grades and subjects.

First the TILO team specified the criteria of “appropriate” technologies for teachers in Egypt. These came from their experiences with other teachers using technology effectively in Egypt and elsewhere and with what was available to teachers in Egypt. The stated that appropriate technology:

1. Directly connects to the Egyptian curriculum and classroom practice, is adaptable to changes in the curriculum and is usable in a range of grades.
2. Supports student-centered learning, problem solving and critical thinking.
3. Has low or no cost purchase price and use to enable replication of use in other schools.
4. Contains Arabic-user interface and descriptions, whenever possible.
5. Is easy to learn and does not require lengthy training.
6. Is not dependent on internet connection.
7. Provides support for areas of the curriculum for which materials cannot always be found, e.g. complex labs in science.
8. Provides simulated environments to enable learning experiences not otherwise possible in the classroom.
9. Finds new educational purposes for applications currently used by the Egyptian Ministry of Education.
10. Saves teacher time on administrative tasks.

The TILO team included digital cameras and projection systems as appropriate technologies. They also anticipated installation of digital white boards in some of the TILO primary classrooms. They automatically included the Microsoft Office suite since those programs would be available on all computers through the MOE school agreement with Microsoft. The team researched and identified resources available for download from the internet that fit most of the criteria, especially choosing those easily connected to the curriculum that were also low or no-cost and not dependent on internet connection. They limited their subject areas to those specified in the TILO project plan—Science, Mathematics, Arabic, English. They later included Social Studies after the Subject Matter Experts at the MOE made multiple requests. The team tested all chosen programs with technology-using Egyptian teachers, culling for the highest ratings for learning and teacher ease of understanding and use. After the workshops introduced them to the features of the chosen resources, the team received the full support of the Subject Matter Experts at the MOE.

Because the team was aware of the challenge for science teachers who had little or no appropriate equipment, they searched for resources to help them. There were a few appropriate resources online but none as powerful as Crocodile Chemistry and Crocodile Physics, both excellent applications for simulating labs and building critical thinking. The team purchased licenses for the SBR, TSS and the additional 127 extension Prep schools. The licenses purchased included all updates, freeing the schools of future costs. A number of additional resources were introduced through the project’s Public Private Partnerships Component and are discussed elsewhere in this report.

Teachers connected to how ICT supports teaching and learning. After the project team settled on an initial collection of over 60 resources, they set about the task of connecting teachers to the learning possible with the selected tools and programs. For the applications available in Microsoft Office Suite, they composed descriptions of their possible use in teaching and learning. For all other programs, they composed descriptions providing various sample uses. For a selection of programs, they created lesson plans directly tied to their curriculum for teachers in different subjects at various levels. The testing teachers tried these lessons in their classrooms, rated them for learning and provided specific and valuable feedback.

Once the team had appropriate programs, descriptions and lesson plans, the challenge was to organize these on computers for obvious and easy access by teachers. This required a connection--an interface that would both display the rich selection of resources and guide teachers to those in their area of interest. An outside contracted designer assisted with this task, organizing the resources technically and designing a bilingual web-based interface page with live connections to all those resources appropriate for learning in selected subjects at each level.

To enable schools without internet connection to install and use most of the resources chosen, the resources and interface were gathered into a single file with directions for how to install the interface and linked programs along with their introductions and lesson plans. Later in the project, an application was included that installed the programs automatically.

Resources easily accessible. The “Digital Resource Package”, as it came to be called, was installed on over 10,000 computers in 404 TILO schools, including the computers in the SBR, TSS and extension Prep schools. TILO digital resources, along with directions for how to install the programs and how to access the various teaching tools, were given to the MOE Technology Development Centers in each governorate in Egypt to distribute to their schools. In addition, a

listing of programs with descriptions and URLs for downloading, and sample activities were included in the TILO website.

The Origins of “To Be TILO”

The project team realized that they could put the entire collection of digital resource programs along with the supporting documentation and directions for installation onto a DVD or a set of two CDs. These disks could then be distributed with all the digital resource programs to any and all schools and homes that could use them. Because most resources had bilingual interfaces and all the introductions and lessons were available in both English and Arabic, these resources might be useable in any Arabic speaking education system worldwide. Computers in the project with all resources installed became known as “TILO computers.” The DVDs and CDs enabled educators to make their computers be like TILO computers, thus the title “ToBeTILO.” As soon as the “ToBeTILO” DVDs were made available with directions clearly printed on the label to “Please duplicate, distribute and install freely,” the word spread and the demand grew.

Schools reported wide distribution, but the project was unable to track the total number of computers, in addition to computers in the project itself, on which TILO resources were installed or the number of times the CDs or DVDs were copied.

When Intel collaborated with the TILO project to place Intel Classmate computers in TILO schools, TILO digital resources were installed on the Classmates in addition to the programs and resources made available by Intel. The combination of the two sets of resources empowered the Classmates to serve more needs than either served alone.

As the project was underway, teachers were encouraged to communicate with each other via the Microsoft Teachers Network. By the end of the project, Microsoft reported that 25,000 Egyptian teachers had joined the Network, and 20,000 teachers were active users.

1.4.2 Lessons Learned and Recommendations

Lessons Learned

Management and Administration:

- Close collaboration among the TILO hardware procurement, implementation, training, and home office and in-field support teams was key to finding successful solutions to the innumerable problems and unanticipated conflicts that arise in any project involving technology.
- Identification of appropriate resources for teachers and students took more than 8 months of in-depth research by a team of three staff who were quite familiar with both usually available software and programs used successfully in schools.
- Subject Matter Experts in the central MOE offices in Cairo responded to the introduction of resources with great and unanticipated enthusiasm, asking for equipment and follow up training.

Digital Resources

- Because of creating and following a set of specific guidelines, the digital resources chosen aligned with the goals of the MOE. Thus the schools' commitment to their implementation was strong, and it continued throughout the project.
- Testing the chosen resources with technology-savvy teachers was even more valuable to the process than was anticipated. TILO team was able to include their ratings and comments in both training plans and support materials to help guide teachers in best use.
- The low level of effective online teaching materials for the subject of Arabic resulted in fewer suggestions for those teachers.
- While implementation of Crocodile Chemistry and Crocodile Physics applications was very successful in the TILO SBR, TSS and extension prep schools, teachers in other schools grew to expect that these resources would be included in ToBeTILO and were disappointed when they did not have access to them.
- Trainers reported that teachers did not need a high level of computer skills to begin using the resources. They also reported that the user friendliness of the TILO digital resources and supporting materials converted some "technology resisters" to supporters.
- Trainers also reported that the suggestion to duplicate and distribute the CDs and DVDs spread the culture of sharing digital resources within the schools and Idaras.

ICT in Teaching and Learning

- Because schools joined the project at different times with different specifications from the MOE and MCIT, equipment types, numbers and placements varied. Additionally, because of equipment delivery problems in the early phases of the project, teachers in some of the SBR schools completed much of their training before they had equipment and resources available in their schools. Some teachers in these schools were unable to practice their new knowledge--to apply what they had learned to their lesson planning in a timely manner.
- As anticipated, teachers well trained and practiced in effective teaching methods were more receptive to using technology and more quickly understood how technology might improve learning.
- Schools and trainers reported many examples of appropriate lessons teachers had created using digital resources, including combining programs to develop animated lesson material.
- Feedback from teachers about the purchased programs of Crocodile Chemistry and Crocodile Physics was very positive. Teachers set up virtual labs in places where they had not been able to set up any labs before, and students practiced lab activities themselves instead of only watching them demonstrated by their teachers.
- An information brochure about the usefulness of the Microsoft teachers' network was distributed to TILO schools and Idaras to encourage teachers to create online groups themselves.
- The connection and implementation of technology in schools is most successful when equipment is available to teachers and administrators well ahead of the start of training.

- Trainers observed that using the TILO digital resources increased students' eagerness to learn and decreased student absence. In addition, they reported that they supported student self-confidence and independence as well as helping students develop critical thinking and problem solving skills.

Recommendations to MOE

- Include more staff time and budget for identification and organization of digital resources and for the unanticipated needs for software development or other needs to be contracted externally, e.g. the interface.
- Include more time for generating support such as lesson plans and school-specific resource descriptions.
- Continue to include in-depth testing of chosen resources with tech-savvy teachers from other schools.
- Find available resources online to suggest to math and science teachers who do not have access to licensed software, e.g. Crocodile Chemistry and Crocodile Physics.
- Allow for greater exploration of possible connections and uses of the TILO digital resources on the Intel Classmates. Include Intel in the exploration.
- Make sure to have skilled trainers with a clear understanding of how to integrate technology in teaching and learning who can use ICT appropriately in their own training sessions to mentor its use.
- Through the Microsoft Teachers Network or a similar online community, set up digital connections such as user groups among teachers, teachers and administrators and all with trainers as early as possible in the training process.
- Select a group of early successful teacher-users in TILO schools and train them in the creation and testing of ICT-supported lessons to add to the collection of resources.
- Work more closely with the software development teams at the MOE, including them in training at the schools so they can better see the connection of ICT to teaching and learning. Urge the software development teams to take ownership of TILO digital resources, updating them with new software and additional teaching and learning resources and continuing to distribute them to schools.



Training of teachers on problem solving in Helwan schools.

Component 2

Public Private Partnerships

2.1 TILO Public Private Partnerships

2.2 Discovery Channel Global Education Partnership

The development of Public-Private Partnerships (PPP) to support the MOE and TILO objectives was the purpose of Component 2 of the proposed TILO project design. Initially, the project team did not anticipate the high degree of success that came from TILO public-private partnerships. The Public-Private Partnerships component played a major role in achieving program objectives in this project. Furthermore, the TILO team worked to integrate the Public-Private Partnerships component within the TILO scope so that the partnerships contributed directly to the project's objectives. The TILO team succeeded in developing a variety of significant partnerships with technology firms, oil companies, media organizations, local training companies and others. The following is a brief summary of the main partnerships secured through the TILO project.

2.1 TILO Public Private Partnerships

Microsoft Because the use of computers as teaching tools was integrated into the workshops on effective teaching, teachers needed basic computer skills before undertaking training in effective teaching. To provide this training to TILO teachers, TILO staff turned to Microsoft, which was offering courses to prepare teachers for the International Computer Driver's License (ICDL). Microsoft agreed and began the training teachers. Microsoft began training and certifying ICT professionals in the MOE's governorate-based Technology Development Centers, who, in turn, trained teachers in their governorates. This reduced costs and also built capacity in the TDC to train teachers. In addition to providing TILO teachers with Basic ICT skills training, TILO received Microsoft licenses at a heavily discounted rate under the MOE/Microsoft School Agreement.

Intel A partnership with Intel took more persuasion than the partnership with Microsoft, because they had partnered with another USAID project which, Intel felt, did not provide adequate support in schools. Intel was initially skeptical of TILO's model, but eventually agreed to work with TILO Smart Schools (TSS), which were more generously furnished with ICT equipment. The "Getting Started" Basic ICT skills training program implemented by Intel in TSS

proved effective in motivating teachers and improving their skills. Intel saw that the TILO model included close supervision and corrections to ensure that the model worked. As a result of the close coordination between the project team and Intel staff, the partnership expanded and a Memorandum of Understanding (MOU) was signed granting TILO a generous donation of 1,507 Intel Classmate PCs. Over the life of the project, Intel and TILO worked together to equip a total of 66 TILO schools across the governorates with the Intel Classmate PC solution. Intel worked with TILO to integrate the TILO Digital Resources collection into the Intel suite installed on the Classmate PCs. The suite has a menu of programs from which to select education, security, classroom management, e.g., timed quizzes, marked on display, or internet browsing. TILO tested the suite extensively in a pilot group of schools and gave valued feedback to Intel. This was a payoff for Intel as this was the first real deployment of the Classmate PC solution in Egypt and the testing gave rich insight into the benefits, challenges and obstacles to implementation on the ground. The Classmate PC solution gave students a chance to work outside the lab setting and in their own classrooms. In addition, because the solution was mobile, it could be used in different classrooms when needed. Whether as a standalone solution in schools that had little to no technology or as an add-on solution for schools who had proved their ability to manage technology and use it effectively, the Intel Classmate PC solution was one of TILO's most innovative and successful contributions made possible through a Public-Private Partnership.

IBM A successful partnership was fostered with IBM. During TILO's first year, contact was made with IBM's Head of Research and Development for the Middle East. TILO learned that IBM was developing a web-based phonetic reading program in English, called Reading Companion. Through various discussions, IBM asked to conduct testing in a handful of TILO schools so they could adjust the phonetics to recognize Egyptian pronunciation of English. TILO agreed and in turn asked that once the program was ready, an MOU would be signed granting TILO permission to pilot the program in all schools with adequate internet connectivity. Once deployment of the program began in TILO schools, it quickly became evident that it was a success. Not only was Reading Companion easy to use, innovative and catered to students of all ages, it was an excellent tool for teaching English reading skills and improving the quality of pronunciation. IBM invested a great deal in Reading Companion and continuously responded to user feedback and suggestions on how to improve the program.

Reading Companion offers books online for various age groups; the learner chooses a book and reads it with corrections in pronunciation from the online tutor. Reading Companion also gives teachers the ability to organize students according to their classes online, and to assign different books for different classes. There is also a component that allows teachers and students to create their own e-books that are then reviewed and approved by IBM editors in the UK before granting access to include them as part of the digital library. In total, TILO teachers have published 65 approved e-books on the IBM Reading Companion digital library. Furthermore, to address the needs of the MOE, TILO initiated another partnership with Longman Publishing who had been contracted by the MOE to provide the English language curriculum materials for primary, prep and secondary students. This partnership with Longman, IBM and TILO allowed the project to work with an independent consultant to create e-books based on the Longman materials for grades 1 to 6, therefore providing a resource for teachers and students that directly related to the MOE curriculum for English. As a result of these combined efforts and the successful implementation of the Reading Companion program in 149 TILO schools, the MOE signed an MOU with IBM Egypt granting them access to deploy the Reading Companion program

nationwide. This is a considerable achievement that was made possible by the efforts of the TILO team through this Public-Private Partnership.

As further proof of the successful partnership between TILO and IBM, the project was granted two service grants from IBM totaling \$15,000. One grant was used by TILO to provide IT suitcases to support the Minya expansion initiative at the Idara level, and the other grant was used as support for the creation of e-books directly related to the Egyptian curriculum for use by teachers and made available on the IBM Reading Companion virtual library.

Houghton Mifflin Harcourt Through IBM, the TILO team made contact with Houghton Mifflin Harcourt (HMH), based in Ireland. The organization has ownership of the award winning Kidsmart Young Explorer software series used by IBM as the basis for the Kidsmart hardware units designed for primary students from kindergarten through Grade 2. IBM has donated a total of 74 Kidsmart units for TILO primary schools. The TILO project's Digital Resources team conducted a thorough review of the Arabic version of the Young Explorer software and found it to be a rich resource for kindergarten and primary students in Egypt. It is important to note that effective resources in Arabic are scarce and the team recognized early on that this was a significant gap faced in working with government school teachers and students. The Kidsmart Young Explorer software made a strong contribution towards filling this gap for primary school students and in transforming the learning environment to be more child-directed and interactive. Through its partnership with Houghton Mifflin Harcourt, TILO was able to secure Kidsmart Young Explorer lifetime software licenses for all 192 TILO primary schools. These licenses were installed on all laptops and PCs provided by the TILO project to schools. This was a significant contribution that provided primary students with an excellent interactive program specifically designed for their age group.

Orch Tech (Crocodile) Another successful resource provided through the Public Private Partnership component was the Crocodile software series for Math and Science. Crocodile software is produced by OrchTech, a software development company with representation in Egypt and Europe. Through the partnership, TILO negotiated an 80% discount on science and math programs for lifetime licenses to all TILO schools whether primary or prep level. The Crocodile series gave students and teachers an excellent and much needed resource that allowed them to carry out various experiments through a virtual lab. Public schools do not have labs properly equipped for experiments, nor are the required materials provided. Therefore, the Crocodile series was a rich and effective addition to the TILO Digital Resources collection.

ExxonMobil Through a partnership with ExxonMobil, TILO was able to provide Idara members in each of the governorates with laptops to assist them in the monitoring and follow-up of TILO's work in schools. A total of 218 laptops were donated by ExxonMobil and distributed across the governorate Idaras to provide support to schools at the Idara level. All donated laptops were checked by the TILO team and distributed to the Idara units through the MOE.

RWE and HSBC Bank TILO also brought in resources through more conventional Public-Private Partnerships, through which a private firm makes donations. This was the case with RWE, a German Oil and Gas company as well as HSBC bank. Through grants from RWE and HSBC, TILO was able to provide full technology packages and training to an additional 5 schools in greater Cairo. Throughout the implementation of these initiatives, TILO's partners were able to see firsthand the impact of their contributions to schools and, more importantly, that

TILO had made every effort to ensure that the implementation of the partnership had been effective and under the leadership of the MOE.

A major factor to the success of TILO Public-Private Partnerships was avoiding a “one size fits all” approach. The partnerships were formed with one goal in mind--to contribute to the objectives of the TILO project and the work being done in schools. The TILO project team took the lead from the onset to determine how best to shape these partnerships so the outcomes not only highlighted the solutions and organizations represented but also contributed significantly to improving the learning environment in Egyptian schools. Special attention was given to the partnership projects by the TILO team during implementation and follow-up to make sure schools and students got the most out of the contributions made. In return, partners received valuable feedback related to their solutions as well as a platform to demonstrate the impact of their programs and initiatives in support of education in Egypt.



Students using Intel Classmates in a school in Helwan Governorate

2.2 Discovery Channel Global Education Partnership

In 2009, Creative Associates and the TILO project embarked on a partnership with the Discovery Channel Global Education Partnership (DCGEP). The TILO partnership with DCGEP, funded by Coca Cola Africa, is the largest of the TILO Public-Private Partnerships.

The TILO project goals to improve Egyptian student, teacher and community learning aligned with DCGEP’s goals. For the past 16 years, DCGEP has been working in under-resourced schools around the world, using the power of pictures and video to increase student learning, teacher effectiveness and the community’s access to information and involvement in their children’s schools.

DCGEP and TILO collaborated to develop educational videos combining expertise and high quality documentary footage from Discovery Communications tailored to the needs of educators in Egypt. In addition, DCGEP provided teacher training and capacity building to TILO school teachers to ensure their ability to maximize the value of educational videos as a tool for teaching and learning. The partnership also provided training to other educators, administrators and community members to encourage collaborative projects and community support of schools.

While the TILO project worked in a total of nine governorates in Egypt, the TILO-DCGEP partnership covered only six governorates in order to fulfill the demand for Partnership resources and trainings under tight budget constraints. The success of the Partnership depended on the strong foundation built previously by TILO in schools and in the MOE in Idaras and governorates. The TILO project provided an integrated technology model including teacher and school administrator professional development to support the pedagogical use of technology and digital resources in the core subjects. Through TILO, teachers and administrators in schools received training modules on effective teaching methodologies, administration skills and ICT Skills. Because of TILO teacher training, DCGEP training required only two additional modules.

TILO's demand-driven approach, which required project schools to request and apply for inclusion, eased the transition to using technology, particularly the TILO technology model, in schools. The TILO-DCGEP partnership helped to build the capacity of the Idaras and Muderiyas to develop other partnerships between school communities and the private sector, particularly in the areas of health, environment, and economics. All these factors combined to ensure the successful implementation of the Partnership program in TILO schools.

2.2.1 School Selection and Scale-up

The selection process for the Partnership schools followed the steps of the TILO demand-driven approach. The primary schools attended an orientation session on Partnership objectives and requirements to understand their roles and responsibilities in joining the Partnership. The schools then submitted registration and application forms which Idara and Muderiya teams evaluated in collaboration with the Partnership team. Participating schools were chosen and announced. The process was implemented in six governorates and selected 126 Partnership schools out of a total of the 192 TILO Primary SBR schools.

The Partnership originally targeted 60 schools in Alexandria and Beni Suef in 2009. By 2011, the partnership had added 40 schools in Fayoum and Minya and 26 schools in Qena and Aswan. With the then-current political transitions and a new Egyptian government, plans for further implementation were stalled. However, the Discovery Channel Global Education Partnership has continued to seek new opportunities in Egypt.

2.2.2 Alignment with the Ministry of Education Strategic Plan

The desired outcomes of the TILO-Discovery Channel Global Education Partnership (DCGEP) partnership fit into the Egypt Ministry of Education 5-Year (2007-2012) Strategic Plan. The objectives and activities of the TILO project and the Discovery Channel Global Education Partnership (DCGEP) closely aligned with and supported those of the Ministry of Education. For instance, the TILO technology model supported the fifth program "Technology Development

and Information System” with addition of equipment and specification of appropriate digital resources. DCGEP provided the educational videos to enrich TILO digital content. The TILO-DCGEP partnership focused on integrating the videos into the Egyptian curriculum in their teacher training. These videos and trainings aligned closely with the objectives in the MOE’s first program--“Comprehensive Curriculum & Instructional Technology Reform.” The videos added by the Partnership became an asset in the schools for students, teachers and the community as well.

The training program delivered through the Partnership supported the second and the ninth programs “School Based Reform” and “Basic Education Reform.” The combination of resources and training offered by the TILO project and the Partnership enabled schools to become effective, fulfilling the objective of the School Based Reform model. As a result, many TILO-DCGEP schools submitted applications to become accredited through the MOE.

The TILO-DCGEP partnership also supported the eighth program--“Early Childhood Development” as teachers in the partnership schools used the videos with children in kindergarten. These videos supported the learning in their lessons by showing real-life applications and examples from the environment.

2.2.3 Materials and Training

Videos, Ministry of Education Review Process and Curriculum Mapping

Ministry of Education consultants and experts in various subjects—Arabic, English, mathematics, science, and social studies – reviewed partnership videos in collaboration with the MOE General Library Department. The consultants commented on the videos’ content and offered suggestions for any modifications. The General Library Department handled the review process at the MOE level, coordinating among different subjects, collecting feedback, giving the final approval to distribute the DVDs in schools and then distributing them. The DVD review process produced an average of 12 videos each year, each containing many segments.

The TILO-DCGEP partnership provided a digital library of DVDs consisting of 163 different videos to schools. Each school received three copies of each DVD to distribute in the schools--two copies for the TILO activity room and one copy for each school library.

In August 2012, the schools received a new resource for lesson planning--a detailed mapping guide linking 82 video segments with the appropriate curriculum in each of the five core subjects at each primary Grade level 1 through 6.

By June 2013, the school received the second part of the curriculum links to complete the total of 163 video segments mapped with the updated Egyptian curriculum.

Training

The TILO-Discovery Channel Global Education Partnership (DCGEP) partnership delivered two training modules to 126 schools in 6 governorates: Alexandria--27, Beni Suef--48, Minya--19, Fayoum--6, Qena--13 and Aswan--13. DCGEP training activities in schools began in February 2010 and ended in December 2012.

Training Module 1: “Integrating Video into Learning”, a three-day training workshop with 7-10 days of follow up, was provided to all 126 TILO- DCGEP schools. Master Trainers and TILO staff provided training and in-school follow-up visitations for 1,368 participants.

Workshop Topics

- Introduction & Video Viewing Session
- Video Techniques and Strategies and Adapting Video by Subject/Grade
- Lesson Planning--Instruction & Examples

Objectives of the three-day workshop and follow-up visits were to support teachers to:

- Improve student learning;
- Increase teachers’ effectiveness in the classroom;
- Integrate educational video and technology as valuable resources into classroom learning to complement Egypt’s National Curriculum;
- Apply techniques and strategies for using video;
- Develop skills to deliver lessons using video as an educational tool;
- Select the appropriate video segments for any lesson;
- Link video segments to the appropriate subject or learning area and grade level;
- Plan an effective lesson activity linked to Egypt’s National Curriculum using appropriate video(s) to support the lesson.
- Participants from each school typically included 5 TILO Master Teachers, 1 School Coordinator, 2 Senior Teachers, 1 School Leader, 1 Librarian and 1 MOE Idara member.

Training Module 2: “Community Outreach” was a two-part training workshop with 2 days of training followed by two days of in-school visits and support. 1,260 participants from 126 schools attended this training.

Community Outreach I: Workshop Topics

- Introduction
- Creating a Community Action Plan
- School Visit - Action Planning

The objectives of the workshop and follow-up visits were to support educators and community members to:

- Identify the significance of the a Community Project;
- Explore the importance of forming a committee that will oversee the school’s Community Project;
- Identify the steps to develop an Action Plan;
- Analyze the specific situation, problem or need of their community;
- Find realistic solutions that solve their problem that can be addressed using Partnership resources;

- Identify the initial actions to be taken after developing their Action Plan.

Community Outreach II: Workshop Topics

- Executing the Action Plan
- Creating Local Partnerships

The objectives of the workshop and follow-up visits were to support educators and community members to:

- Identify the six steps needed to implement a Community Project;
- Design a Community Project from the analyses conducted during Community Outreach I workshop;
- Present their Community Project Plan;
- Define a Community Partnership;
- Identify the importance of creating a local partnership;
- Outline steps and strategies for creating Community Partnerships;
- Identify strategies for obtaining positive results.

Participants in each school typically included 1 School Coordinator, 3 School Leaders, 1 Master Teacher, 2 Board-of-Trustee members, 1 MOE Idara member, 1 community member and 1 Social Worker.

2.2.4 Follow-up and Support

Training follow-up and site visits by TILO-Discovery Channel Global Education Partnership (DCGEP) trainers were conducted in each Partnership school to ensure the effective integration of video. Follow-up included one coaching and mentoring day, two video-viewing sessions with teachers, two days of classroom observations and one day identifying and presenting best practices. An additional day was dedicated to supporting teachers individually as they planned the integration of videos in their instruction.

To ensure that community projects were well planned and implemented, Community Outreach Trainings were followed by a day of support for each training day in each school.

The trainers' system was designed to follow-up on each module of training separately. The system was subsequently modified to allow follow-up on both modules at the same time when visiting the school to increase support and use of time.

Partnership follow-up and support was provided during numerous monthly visits conducted by the project team, including the Partnership trainers, the Training Team Leader and the Program Manager. Initially, the Program Manager planned to provide bi-monthly visits to each of the locations. Because of increasingly volatile security situation in many locations in Egypt, visits were reduced to one each month. More recently, after the Egyptian revolution in 2011, the visits were conducted on a security-ensured basis in each project governorate.

The TILO-DCGEP team supported strong in-school trainings by Master Teachers to reach the greatest number of schoolteachers and to promote the school training units' performance.

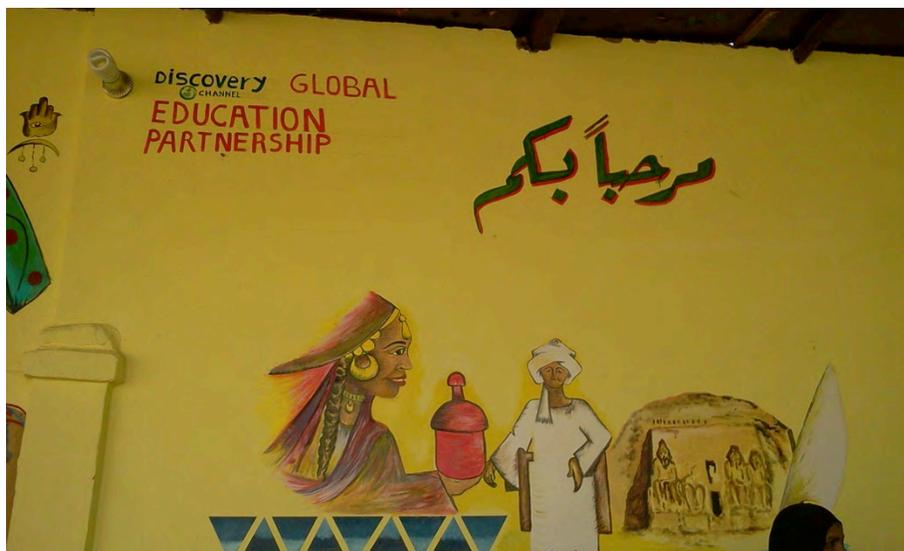
Accomplishments

Trained Stakeholders: The TILO-Discovery Channel Global Education Partnership (DCGEP) partnership trained 5,761 teachers and 307 supervisors as well as 1,430 administrators and directors within 126 partnership schools. In addition, 252 members of Boards of Trustees, community, parents and librarians were included in the trainings. The training program extended to include 50 Ministry of Education staff, in particular those working at the Subject Matter Consultant offices and the General Library Department. All received two trainings--“Integrating Videos into Learning” and “Community Outreach.”

Collaboration with the Egypt Ministry of Education: The MOE Subject Matter Consultants in the five core subjects and Educational Computing along with representatives of the Libraries Department reviewed the content of the 163 proposed videos. All videos were produced in the Arabic language and sent to schools as a set of DVDs.

The General Library department greatly supported the TILO- DCGEP partnership implemented in the 126 school libraries. Librarians at the Partnership schools received both the Partnership training and the video digital library. As a result, the Partnership implementation team was invited for two consecutive years to participate in the “Annual Librarian Reading Camp”, a week-long conference bringing together librarians and students from throughout Egypt. During the camp, a group of librarians who had been trained by the Partnership previously in 2011 led a video workshop. Eight librarians and 41 students participated in the workshop, which focused on integrating video content with the books provided previously by the USAID funded “National Book Program.”

Videos Mapped to Curriculum: 163 video segments were linked to the National Egyptian Curriculum in Primary 1st through 6th for five core subjects--Arabic, English, mathematics, social studies and science. Trained teachers from both the Beni Suef and Alexandria governorates created the Mapping. Subject Matter Consultants and Experts followed up with a two-week review workshop at the Ministry of Education.



Wall of a school playground in Aswan Governorate developed through the community engagement component of the DCGEP partnership.

2.2.5 Best Practices Events

“Best Practices” gatherings gave schools and other TILO participant groups an opportunity to present examples of what they considered their successes, whether they were particularly well-integrated lesson plans within a classroom, successfully implemented community projects or both. More than 20 one-day Best Practice events were organized during the last three years for the 126 schools in the six governorates with schools in each phase grouped together. To share experiences and provide constructive feedback and as part of the training cycle for participants, schools chose which practice to present. Ministry of Education officials, including the Ministry Undersecretary in each governorate were invited to Best Practice events to better learn about and appreciate teachers’ and active members’ efforts at the school, Idara and Muderiya levels and to strengthen their support for the work in schools over the lifetime of the project.

“The exceptional performance of the TILO-Discovery Channel Global Education Partnership (DCGEP) team has led to significant quality improvements in classrooms. The videos have enabled teachers to interact with students. The Discovery partnership made the education process easier and the videos made students fall in love with education.”

Ms. Lisa Franchette,
Head of Education Sector, USAID Egypt

A day-long, whole-project Best Practices event, held at the Ministry of Education on March 6, 2013 provided an understanding of the structure and objectives of the partnership, its positive impact on students, teachers, schools and their surrounding communities, community participation and the capacity of school leadership to plan community projects and sustain the project overall. The head of Education from USAID/Egypt was in attendance, as well as representatives from the MOE, Coca Cola Africa Foundation, DCGEP, MOE Subject Matter Experts and MOE officials from the various governorates, and TILO staff members.

Schools’ best practices of community projects and lessons in classrooms in different core subjects were shared, demonstrating the role of the partnership to improve the learning outcomes in the partnership schools. 16 presentations were shown throughout the event demonstrating the effect of training from the point of view of students, teachers, librarians, members of Boards of Trustees, principals and school administrators.

The event started with a poem written and recited by one of the students, Ahmed Abdallah, Aziz Abaza School, from Alexandria governorate, followed by presentations and Thank-You and training-attendance certificates for the Ministry of Education Subject Matter Consultants.

2.2.6 Sustainability Workshops

Workshops: During June and July 2012, 100 schools in Beni Suef, Alexandria, Fayoum and Minya participated in workshops designed to strengthen schools’ ability to sustain the work of the Partnership. 914 participants from the schools, Idaras and Muderiyas participated. During November and December 2012, 26 schools in Aswan and Qena conducted their sustainability workshops with a total of 300 educators attending. During the workshop, participant teams from each school developed a sustainability plan outlining their agenda for

“The workshop today was a real opportunity to orient the schools, Idaras and Muderiyas with the concept of sustainability.”

Mr. Abdel Gawad
Beni Mazar, Minya

training new teachers, monitoring desired performance and maintaining community outreach. Idara and Muderiya representatives in each governorate created their own sustainability plans which included planning for continued school-supervisor training to sustain the project after the Partnership training was completed.

Competitions: The TILO-Discovery Channel Global Education Partnership (DCGEP) team organized competitions among schools in three governorates--Alexandria, Qena and Aswan--to select the most:

- Distinguished School
- Distinguished Master Trainer
- Distinguished Student
- Distinguished Principal
- Distinguished Librarian
- Distinguished Board of Trustees

The competitions motivated schools and built inter-school connections as the project was closing. The contest winners were announced and prizes awarded during the MOE graduation event in each governorate. The winning schools received the laptops, cameras and projection systems that were used previously by the Partnership trainers in the schools.

Community Outreach: The Community Outreach component of the TILO- Discovery Channel Global Education Partnership (DCGEP) partnership had a great impact on the success of the program in all governorates. Many recorded success stories demonstrated the positive and significant impact in the communities.

“Many benefited from this project, especially the local community and parents. The students and village community felt a change in the role of the school and its attempts to communicate with the surrounding community.”

Mr. Mohamed Farid Dowidar,
Librarian, El Mohandes Dowidar
School, Beni Suef

2.2.7 Lessons Learned and Recommendations

Lessons Learned

- The Partnership team observed that an interdependent relationship between a community and its school increases performance of teachers and learning for students.
- Social workers and other school and community members such as the school journalist played a new role in changing teachers' attitudes, supporting implementation of newly discovered practices and attracting community participation.
- Engaging librarians in the TILO-DCGEP training module from the start of training is vital to strengthening their connection with teachers and to providing a space for student practice with learning resources in the school.
- Providing a third set of the DVDs to each school was important to encourage librarians to use the videos in their library activities and to keep a backup version at the school.
- Building the capacity of the Ministry of Education teams is essential to creating advocates and generating project support at the Ministry level.

- Sustainability workshops are vital for school leaders, Idara and Muderiya teams to learn how to support the administrative needs of the school.
- The depth of the involvement of ministry teams at various levels is the greatest predictor of sustainability.
- Providing DVD copy protection is critical to avoid mass copying, especially with the large number of users.
- Best Practice Events give schools the opportunity to come together to share their successes. These project-organized events benefitted educators on many levels—building presentation skills and self-confidence, sharing successes, receiving feedback from other educators, gaining insight on what other school were doing and being acknowledged by Ministry of Education officials.
- Including the creation of a follow-up system within training supports implementation of new training strategies acquired by teachers and school teams.

Recommendations to USAID

- The inclusion of community participation was critical to the success of this Partnership and showed that the benefit of including community members extended beyond teaching and learning into many different sectors. While community collaboration resolved many education issues, it also contributed to solutions in other areas as well such as economics, health, life skills, and environment. It is highly recommended that USAID consider including community participation components in all education projects.

Recommendations to the Ministry of Education

- It is highly recommended that the Ministry adopt video-assisted instruction in their curriculum and provide audiovisual resources to schools to improve student learning throughout Egypt.
- Best Practice events bring clusters of school together to share successful practices and challenges. Feedback during evaluations indicated that educators learned from these exchanges. Continued support for such events is recommended.
- Community participation was enabled by training school leaders on its planning and implementation. It is recommended that the Ministry include such training in its own programs.
- Schools were successful when partnering with local businesses, factories and financial institutions in completing school renovations and providing educational resources. It is recommended that the Ministry consider the inclusion of such partnerships in its building and resources planning.
- It is recommended that the Ministry create a follow-up system to provide ongoing support for teachers using video-assisted strategies and also for schools to continue to implement community outreach projects.

Component 3

Building Capacity for Effective Management of Technology

- 3.1 TOT of MOE Leadership, Teacher, IT and Supervisory Trainers**
- 3.2 Moodle and the Professional Academy of Teachers (PAT)**
- 3.3 TILO Community Outreach**
- 3.4 Technical Assistance and Support to MOE**
- 3.5 Sustainability, Expansion and Exit Strategy**

The Egypt Ministry of Education (MOE), in cooperation and collaboration with many interested stakeholders, created their comprehensive “MOE 5-Year (2007-2012) Strategic Plan.”

The Ministry plan includes twelve programs for educational reform:

11. Comprehensive Curriculum & Instructional Technology Reform
12. School Based Reform (SBR)
13. Human Resources and Professional Development
14. The Institutionalization of Decentralization
15. Technology Development and Information System
16. Monitoring and Evaluation
17. School Construction
18. Early Childhood Development
19. Basic Education Reform
20. Secondary Education level Development
21. Education for Girls and Out-of-School Children
22. Children with Special Needs

TILO created and implemented interventions to support various programs within the MOE’s plan. In cooperation and collaboration with the Technology Development Center (TDC) and the Ministry of Communication and Information Technology (MCIT) and other education reform interventions, TILO developed a replicable model of technology, training, follow-up and support to enable the MOE to both manage and sustain the reform progress made in TILO schools. TILO set as a priority capacity building for the management of technology, as many other projects in Egypt and other countries had experienced significant challenges transferring responsibility for the support of the technology after the end of their projects.

(For details, see Part II, Component 1.2—TILO Training, Follow-Up and Support and 3.7—Sustainability, Expansion and Exit Strategy.)

3.1 Training of Trainers of MOE Leadership, Teachers, IT and Supervisory Trainers

3.1.1 Training-of-Trainers for MOE

TILO provided Training-of-Trainers (TOT) sessions to MOE leadership trainers to develop their capacity to deliver the leadership training modules to school administrators, senior teachers, and supervisors. TILO trainers worked in partnership with the MOE leadership trainers, coaching and mentoring them to deliver leadership training to the leadership of expansion Preparatory schools.

TILO also provided Training-of-Trainers sessions to MOE supervisory trainers to build their capacity to deliver the supervisory training modules to the MOE senior teachers and supervisors.

TILO trainers worked in partnership with the MOE IT trainers, coaching and mentoring them to deliver IT training to the TILO Preparatory School teachers, Senior Teachers, school administrators and MOE Supervisors.

(Details and lists of workshops can be found in Part II Component 1.2—TILO Training, Follow-Up and Support)



Training of Trainers in Minya Governorate

“Our staff trains others on what we have learned, expecting nothing in return but the joy of sharing knowledge.”

Gehad ElBaraway, Definno School Principal

3.1.2 Capacity Building for Technology Development Center (TDC)

During the capacity building workshops with the Technology Development Center (TDC) teams at the Idara level in each governorate, the TILO technical team conducted a session on how to install TILO digital resources in expansion schools with a detailed manual describing the process.

The TILO technical team designed a workshop specifically targeting TDC staff. The objective of this workshop was to refresh their knowledge and review the overall accomplishments under TILO, primarily focusing on building their skills and capacity so they can sustain and support the technology model in schools. TILO Senior Technology Coordinators conducted the workshops in each governorate. Feedback received from participants was positive.

(See also the reports on training in Part II Component 1.2—TILO Training, Follow-up and Support)

“USAID, through the TILO Project has instigated a paradigm shift among teachers. TILO created a momentum among the teachers and increased their confidence in using technology. When teachers began to change their perceptions and the way they interact with and respond to technology, this had a positive impact on students. They provided their students with support and in return, students began to appreciate the importance of pursuing specialty tracks, and to recognize the value-added benefits of technology.”

Mr. Mohamed Zayed, Head of the Ministry of Education Technology Development Center,
Beni Suef Governorate

3.2 Moodle and the Professional Academy of Teachers (PAT)

3.2.1 Moodle

Moodle Objective

The TILO project offered to assist the MOE in testing “Moodle”, the free open-source online Learning and Course Management System that is a software platform used to conduct training courses on the internet. Moodle helped overcome the following challenges:

- The need for ongoing teacher training and support
- High cost of training across Egypt
- Training quality control
- Increasing utilization of technology at Idaras and schools
- Ministry challenges in managing and/or assessing learner participation and course results from a distance

In order to complete this activity, TILO installed and configured the free Arabic version of the Moodle system on MOE servers. In addition, the TILO team worked with the MOE Technology Development Center (TDC), e-content experts and Seward Inc, a project subcontractor based in the USA, to develop a two-week training course on the structure and design of content on Moodle and an additional 3-day training on Moodle management systems. Almost 20 participants attended from the Professional Academy of Teachers (PAT), the Multimedia Unit at the Technology Development Center (TDC), educational materials experts within the MOE Basic Education Units, as well as the TILO project team. The objective was to help MOE build its capacity in the area of e-learning.

Pilot Test

Responding to the MOE's request to conduct a pilot test in order to assess the benefits of using Moodle, TILO selected "Best Practices in Teaching--Student-focused Education" as the first course module to show teachers how to manage a class using best practices.

TILO designed the training content for the pilot module in three governorates: Alexandria, Fayoum and Minya. 82 teachers participated in the course on the internet in addition to 20 MOE staff members whom the project team trained to be course facilitators.

| Governorate | Number of Moderators | Number of trained teachers |
|--------------------|-----------------------------|-----------------------------------|
| Alexandria | 4 | 43 |
| Minya | 7 | 25 |
| Fayoum | 9 | 14 |
| Total | 20 | 82 |

The objective of the pilot was to assess:

- If the Moodle system can be used as a tool for professional teacher development across Egypt
- The ability of the Muderiya or Idara level to oversee training
- The effectiveness of the course
- In 2010, training-of-trainers was conducted for TILO trainers and Governorate Team Leaders participating in the pilot to learn about:
 - Moodle testing process "Requirements & Expectations;"
 - Moodle learner interface options, Moodle Course moderator interface capabilities;
 - Course content where they were role-playing the learner and moderator reading through the content and participating in the assignments.

TILO trainers conducted additional training for MOE moderators and observers to prepare them for the pilot. A meeting took place among TILO representatives, Dr. Tobal, Advisor to the Minister on IT and Pilot Committee members to approve the launch. The pilot took place across the Fayoum, Alexandria and Minya governorates.

An additional survey was conducted at the end of the pilot test. According to the survey findings, the participants and moderators consider Moodle to be a very effective and easy tool for sharing ideas and a good platform for learning.

Pilot Survey Conclusions

- Moodle is a very simple tool. Even participants who did not receive orientation on how to use it still considered it an easy and effective tool for training teachers and sharing ideas, especially in remote areas. Over 96% of the participants were willing to take online training using school or Idara computers labs.
- Approximately 70% of the participants thought that a co-moderator at the Idara level would be able to monitor a Moodle course for 20 teachers at a time after receiving 2-5 days of training.
- 100% of MOE moderators felt that they had received effective training on how to moderate. Moderators took an average of 4 hours or more each week to moderate their participants, including the weekly meetings among the moderators' group.
- Over 88% of moderators felt that Moodle was an effective medium to deliver and control the learning process, but they thought the performance could improve if they had more face-to-face meetings with the participants.
- Over 90% of moderators thought that in all or most cases, the course design and content were effective, that the courses loaded quickly and were easy to navigate. Submitting assignment and tracking grades was easy, and they recommended the course to others.

A Moodle sub-committee meeting was convened which resulted in recommendations to the TILO steering committee for a scale-up based on the Moodle pilot. The results of the Moodle pilot were presented and discussed among the group. Four representatives from the MOE, including three Idara moderators and a teacher, presented their opinions of the experience. The main recommendation was to work with the Professional Academy of Teachers (PAT) and transfer TILO knowledge of Moodle to their team.

To follow MOE recommendations, the TILO team began a series of meetings with PAT staff. TILO shared the pilot results and worked with them to accredit the Moodle training course to be used nationwide.

TILO provided technical courses and workshops for the PAT technical team on how to install and maintain Moodle programs. This was implemented collaboratively with the PAT and USAID's multi-faceted capacity-building and sustainability efforts. TILO also provided PAT technical staff with a one-day training on how to convert TILO accredited materials into a Moodle online course.

Another pilot using the School Technology Advanced Management Plan (STAMP) online course was conducted from September–December 2012, with 31 participants from Fayoum and 65 participants from and Minya. In addition, nine moderators from Fayoum and nine moderators from Minya were trained.

As a result of this and other TILO work, USAID approved the transfer of TILO servers to PAT to be used as part of their data center.

3.2.2 TILO's Initiatives with the Professional Academy of Teachers (PAT)

The idea for the Professional Academy for Teachers (PAT) appeared for the first time in 2003 in the national standards documents. The Education Reform Program (ERP) supported the Ministry of Education (MOE) to design the PAT that was established by law 155 in 2007. In May 2008, a presidential decree was issued to organize and regulate its work. ERP also supported the development of the essential systems for the PAT including the Professional Development Certification System, the Teacher Certification System, and the Promotion System.

Since its beginning, the Education Support Program (ESP), another USAID funded project, supported the PAT to operationalize its system by preparing a cadre of professional development reviewers to certify training programs and trainers prepared by various donor-funded projects. To date, the PAT has certified 118 training programs and over 1,500 trainers. PAT has also initiated the certification of local training centers that will lead to a higher-quality decentralized training system.

Under the direction of USAID and the assistance of the Education Support Program (ESP), TILO worked with the PAT to accredit TILO training materials and TILO trainers.

In December 2011, TILO began the process of understanding the Professional Academy for Teachers' (PAT) standards and set up an estimated timeline for the manual accreditation process. In January 2012, the PAT held an accreditation workshop to train reviewers in the accreditation process for training materials. There was an opportunity at the workshop to clarify the areas and terminology that were not previously understood. The accreditation workshops were organized in coordination with the PAT and the Education Support Project (ESP) to review training materials developed by different USAID projects.

TILO Training Manual Accreditation

The TILO training team succeeded in obtaining accreditation for all TILO training manuals according to PAT standards. The following training manuals were accredited:

| Teacher Training | School Administrators Training | MOE Supervisors Training |
|---|---------------------------------------|---|
| Student Centered Learning | Leading Change | Roles and Responsibilities |
| Student Centered Learning Online (Moodle) | Team Building | Conducting Classroom Observations using SCOPE |
| Classroom Management | Motivating and Rewarding Change | |
| Critical Thinking- Level One | IT Skills for Administrators | |
| IT Integration for Teachers | | |
| Critical Thinking – Level Two | | |

| | | |
|----------------------|--|--|
| Problem Solving | | |
| Authentic Assessment | | |
| Training of Trainers | | |

Each topic included a Trainer’s Manual, a Participant Manual and a PowerPoint presentation to use as a training aid. The TILO training team provided lesson plans on the use of effective teaching methods, including technology integration for primary and preparatory schools. TILO training materials can now be used with primary and prep teachers. The lesson plans focused on the core subjects of Arabic, English, science, math and social studies.

Accreditation of TILO Trainers

TILO conducted a series of workshops to communicate the Professional Academy for Teachers’ (PAT) the Standards for Trainers Accreditation to all Master Teachers, Teacher Trainers, Leadership Trainers, Supervisory Trainers, IT Skills Trainers, and IT Integration Trainers. These participants have all been trained and taken part in the TILO project in Cairo, Alex, Beni Suef, Fayoum, Minya, Qena, and Aswan.

In addition, TILO trainers helped all members of these groups prepare their teacher portfolios for submission to PAT for accreditation. TILO collected 563 portfolios from Cairo, Alex, Beni Suef, Fayoum, Minya, Qena, and Aswan and submitted them to PAT for accreditation. PAT announced that as of August 2013, 162 TILO teachers have been accredited.

3.3 TILO Community Outreach

An important component of the MOE’s strategic plan is the creation of a decentralized system. As part of its School Based Reform (SBR) process, the MOE had given the schools the responsibility for managing improvements to their schools, improving student learning, managing resources and leading school change. The schools have found that their needs were too large to handle alone. Through developing community participation and cooperation, schools were able to involve their communities in identifying and solving school-based problems.

Community participation has become part of the MOE’s vision statement: *“The Ministry of Education is committed to pre-university quality education for all; as a fundamental human right, in the framework of a decentralized system based on community participation, and that education in Egypt will be a pioneering model in the region, working to prepare students for the knowledge society in light of a new social contract based on democracy, justice and the passage of a permanent future.”* According to the MOE reports, the challenges in obtaining community participation include the lack of the community awareness of the importance and the need to participate in school reform. Also a challenge is the reluctance of some parents to actively participate in their children’s schools and the lack of partnership between the educational institutions and civil society.

TILO Community Outreach training began with the following objectives in mind:

- Build the capacity of the TILO schools’ leaders to develop communication with their communities as well as create partnerships to support their schools;

- Enable school leaders, Boards of Trustees, and community members to identify their community and school issues;
- Enable schools' leaders, Boards of Trustees and community members to plan, organize, problem-solve, implement and sustain community projects that resolve community/schools issues and at the same time encourage the communities' active participation in their schools;
- Sustain the TILO project initiatives through building the schools' capacity to find their own means for the support of TILO-provided equipment and students' development.

3.3.1 TILO Community Outreach Training

TILO Community Outreach Training was based on the demand-driven model. Orientation sessions were held in six governorates; Beni Suef, Alexandria, Minya, Aswan, Qena, and Fayoum, targeting 60 TILO and non-DCGEP schools. Only schools that showed interest were asked to complete an application form that posed questions about the schools' ability to dedicate time and staff for the training and for the implementation of community projects.

Post orientation sessions, fifty-eight out of sixty schools applied to participate in TILO Community Outreach Training. El Shallaby School in Minya dropped out after the first day of training due to staff limitations, so the final number of participating schools was 57. The Community Outreach training activities began in November 2011 and were completed in July 2012.

Training Model

Three days of training and four days of follow-up were provided to each school. To enrich the sharing of experiences, the training was delivered in groups of three schools. Between the first and second day of training, there was an interval of two months, used by schools to implement their community projects.

At the end of the first day of training, participants were able to:

- Identify the significance of creating a Community Outreach Project
- Explore the importance of forming a committee that would oversee the school's Community Outreach Project
- Analyze the specific situation of their communities
- Identify the steps to develop their Community Project Plan
- Develop their Community Project Plan

At the end of the second day of training, participants were able to:

- Evaluate their Community Projects
- Build their IT skills to document their Community Projects
- Identify effective presentation skills
- Identify documentation steps
- Build school capacity to create partnerships with local organizations/community or businesses

At the end of the third day of training, participants were able to:

- Present their Community Outreach Projects
- Provide constructive feedback on other schools' Community Outreach Projects
- Reflect on lessons learned during the implementation of their Community Outreach Projects
- Sustain the TILO project initiatives by building the schools' capacity to find their own means for the support of TILO provided equipment and students' development

Training Participants

- 4 School Leaders (included Media Specialist)
- 1 Social Worker
- 1 Volunteer Coordinator
- 2 Board of Trustees Members
- 1 Community Member
- 1 MOE Supervisor

TILO Community Outreach training included a total of 570 participants from 57 schools in six governorates (4 schools in Beni Suef, 6 in Fayoum, 5 in Qena, 3 in Alexandria, 15 in Aswan, and 24 in Minya)

3.3.2 School-Community Outreach Projects

The different TILO Community Outreach projects solved local problems through the implementation of projects that served the schools and their local communities in different fields: health projects in 13 schools, environment projects in 10 schools, awareness projects in 7 schools, economic projects in 6 schools, life skills projects in 1 school, and education development projects in 20 schools. Examples of successful project implementation practices in the different fields include the following:

Minya's Maatan School's project focused on improving the living conditions of 30 women who were the main income earners in their households. By organizing sewing classes, women could develop a valuable and possibly money-earning skill. To encourage the women, the school decided to give away six sewing machines to women who excelled in the program.

Menshaat Galal School recognized one of their most pressing problems as the increasing numbers of students dropping out. With their project underway, the school set a goal to decrease the dropout rate by 25% by the end of the school year. During this period of time, the students were provided extracurricular class time to help them catch up on work they had missed. Lastly, the team created a reward system for students who returned to school and excelled in their work by presenting them with a special certificate.

Minya's El Thawra School was able to develop a charity project focused on providing clothes for less fortunate residents of their village. Signs were posted and flyers distributed throughout the village and nearby villages to spread the word. The level of community participation and sheer quantity of clothes received from the local villages and charity non-governmental

organizations (NGOs) proved the project a success. The gathered clothes were prepared at a charity exhibition at the school where the team had planted a lovely garden for the visitors to view.

Minya's Al Shaab 1 School's project was titled "My Family and I". The project aimed at supporting the surrounding community by teaching basic skills through which villagers could obtain additional income. School staff contributed their time to teaching villagers basic skills such as how to make pickles and jams and offered cooking lessons as well as lessons in electricity maintenance, reading, writing and computer literacy. Hanem, a parent and community member, chose to learn how to make jam and pickles by attending classes offered at the school daily from 3 to 5pm after school hours. Feeling confident of her new skill, she began to sell to her neighbors and quickly became a success as word of her products spread. The additional income contributed a great deal to her ability to provide for her family. She continues to set a positive example to others in her community as well as her own children.

Aswan's Dabod 2 School learned the importance of reaching out to their community to solve the most troublesome problems facing the school--an invasion of termites to the school building. Donations were collected in the form of insecticides, building materials, and other resources needed to control the termites and fix the great damage done to the schools' structure in order to make the school a safe place for students.

For an environment project, **El Gharabwy School in Minya** focused on cleaning up and beautifying their area. School staff members, the School Board of Trustees and community leaders came together to organize the cleanliness campaign. Donations and official correspondence was sent to the local district of Abu Gerg to secure loaders and the use of tractors to remove the trash from particular areas of the village. Finally, trees were purchased and planted and walls, pillars, and light posts were freshly painted to conclude the project.

In health, **El Yozbashy School in Fayoum** took the initiative to organize a free medical convoy by partnering with one of the political parties. The schools assessed the community's need for medical services by conducting an opinion poll at homes, mosques and on the streets with men, women and children to determine the extent of their need for a medical convoy. During the medical convoy, 511 patients were examined in different medical specialties.

For the **Rustem Dalla School in Fayoum**, the main problem was the inability of many students to read and write. The school decided that providing free extracurricular lessons to students in Grades 1 through 6 would provide an expanded learning environment where a diagnostic form of teaching could help individual students with reading and writing.

Abdu Mabrouk School in Alexandria had an issue with water leakage that caused flooding of the school, which occurred with every rainfall, because there was no drainage system. As a result, the only available option was to close the school down until the water dried, an inefficient option that had a negative impact on student learning. After gaining the know-how of creating effective local partnerships through the TILO training, they put what they learned into practice partnering with Lotus Company, a local business who donated 250 meters of water absorbent tiles and marble for renovating the staircase. Mr. Ismail Samy, school principal stated, *"I was a student in this same school and suffered from these problems since the school was built. I want to thank the TILO project for guiding us to find a solution to a problem that we had lost hope of solving."*

3.3.3 TILO Community Outreach Successes and Challenges

TILO Community Outreach Successes

The successful implementations of TILO Community Outreach in 57 school projects have had the following impacts on the participating schools and their communities:

- Improved communication and cultural understanding between schools and their communities.
- Enabled the exchange of ideas and experiences by conducting training in groups of schools.
- The community gained a sense of ownership towards the schools. Numerous schools have reported frequent community visits to schools with members offering their services or support as a result of the TILO Community Outreach projects.
- Built the schools' leadership skills to develop/implement school/community-based improvement projects.
- Solved the problems of lack of resources through creating partnerships with non-governmental organizations (NGOs), local community members, business people and political parties.
- Alexandria schools created partnerships with 3 NGOs and Lotus Company
- Beni Suef schools with 2 NGOs
- Minya schools with 10 NGOs, 1 cultural center. 3 community members donated money for students stationary, and 1 Engineer donated money for a medical convey
- Fayoum schools with 6 NGOs, 2 Medical Labs and 2 political parties. Business owners donated a piece of land towards building a new school
- Qena schools with 1 NGO
- Aswan schools with 4 NGOs, a training center and a medical center

TILO Community Outreach Challenges

- The political and economic instability of Egypt beginning in 2011 was a challenge to implementation of the training.
- Constant changes in MOE leadership affected the amount and value of support the schools received during planning and implementation of their projects.
- Poor economic conditions contributed to the difficulty participating schools had in finding local partners that were able to provide significant resources.
- Schools had difficulty identifying ways to encourage the local community to participate in the projects, as the idea was new to them.
- Collaboration required building trust between the school/community members and local businesses/organization first.
- Some school principals lacked teamwork and leadership skills.

3.3.4 Lessons Learned and Recommendations for Sustainability

Schools are now aware of the importance of community involvement and partnerships and have become less dependent on the resources of the MOE. All 57 schools have plans for future Community Outreach projects. The following recommendations are made to the MOE:

- ❑ Continue the addition of Community Outreach training in future projects with the objective of creating positive relations among the community, parents and schools.
- ❑ Involve the MOE in the training and follow-up visits, encouraging them to assume ownership and sustain the training outcomes.
- ❑ Allow an interval of more than 2 months between the 1st and 2nd days of training to allow for project implementation.
- ❑ Direct schools to make use of the partnerships they have created to sustain MOE projects, programs and objectives.
- ❑ Involve the Social Workers Department at both Muderiya and Idara levels from the beginning of training implementation. Their expertise in organizing different activities can ensure successful implementation practices.
- ❑ Conduct follow-up and support visits during the implementation phase of projects to ensure better implementation practices and building of skills.
- ❑ Add community members to training to ensure better community participation.
- ❑ Building school leaders' problem-solving skills during training and implementation would increase the school's ability to overcome obstacles while implementing the community projects. Conducting training in groups of schools gives the participants the chance to exchange ideas and experiences.

3.4 Technical Assistance and Support to MOE

One of TILO's main objectives was to transfer experiences and lessons learned to the MOE so they could replicate and sustain the TILO model in schools. With this in mind, TILO structured workshops, presentations and meetings with MOE leaders and officials at all levels to ensure that the six-year experience was transferred and institutionalized within the MOE system.

3.4.1 Sharing of Information

Sharing Final School Status Reports for SBR Primary, TSS and Preparatory Schools

TILO was the first USAID project that designed a structured follow-up mechanism for schools. The TILO Follow-Up and Support activities were implemented for both primary and preparatory schools. The TILO team wanted to transfer the experience gained during the follow-up cycle and results to the MOE. The TILO Follow-Up and Support Team worked closely with TILO's Governorate Team Leaders (GTL) to finalize the school status reports in TILO governorates in Cairo, Alexandria, Fayoum, Minya, Beni Suef, Qena and Aswan and send them to all Idaras and Muderiyas. The reports clarified the then current status of the schools and helped implement effective mechanisms to ensure the sustainability of the project activities in these schools. School status reports gave detailed information about the school status at the beginning of the Follow-up and Support activities and the current status of these schools at the end of the activities with recommendations to the schools, Idara and the Muderiya in each governorate. The schools were classified according to their performance into three categories: Excellent (Priority 3), Average (Priority 2) and Weak (Priority 1). TILO provided follow-up and support to Priority 1 and 2 schools to move them to Priority 3 status.

The MOE teams provided their inputs and agreed on the content of the report. After reviewing and formatting the final reports, TILO sent a complete set to the Muderiyas and Idaras as well as each school for transparency.

3.4.2 Regular Support Meetings

Meetings with Governors and Undersecretaries

During the life cycle of the project, the TILO management team was keen to meet with governorate undersecretaries to give them a project overview and discuss any challenges. The management team, accompanied by USAID representatives, had the opportunity to meet almost all Governors. After hearing of the success of the project, most of the Governors expressed their interest in expanding the TILO model in schools throughout the governorate. They also sent official letters to USAID requesting several types of expansion.

In addition, the USAID Basic Education team members had several meetings with TILO teachers to discuss lessons learned and how USAID programs could assist them. Through these meetings, USAID received encouraging feedback about the impact of TILO on the quality of education in their schools as well as suggestions for next steps. Open discussions followed, and the participants shared their view that TILO had come at the right time to change the concepts of teaching in schools and to enhance the students' learning outcomes. Participants particularly appreciated the follow-up and coaching provided by the TILO team after the training, which added tremendous support as they began implementation on their own.

In addition, MOE senior level officials and representatives visited TILO schools across the governorates. They discussed the impact of TILO programs and plans for the future with the school management in addition to meeting a group of students to get their feedback on the TILO digital resources model.

Regular support meetings across the governorates

The TILO Cairo-based management team planned regular follow-up visits throughout the project years at the Muderiya and Idara level to update them on TILO progress and next steps and to discuss any challenges. This has proven to be an effective way to gain trust and promote ownership among the MOE representatives and gain support across all levels.

Regular meetings with TDC Directors

TILO worked with five MOE Technology Development Center (TDC) directors throughout the six years of the project. All of them believed that the TILO model is an effective, integrated model. Several meetings were held during which TILO provided an overall view of the project and discussed in detail the technical challenges and how the TILO team was able to overcome those using practical, creative solutions.

The team discussed steps towards ensuring sustainability and TILO's suggested methods for building MOE capacity. The team also explained TILO training and follow-up in schools, coaching and monitoring of teachers, training for the Technology Development Center (TDC) and Lab Supervisors to maintain equipment and reinforcing the use of School Technology

Advanced Management Plans (STAMP) as a sustainability tool. They also shared recommendations that need to be addressed by the MOE in order to sustain the existing model and to expand to non-TILO schools and Idaras. TILO's main objective was to explain how technology could be institutionalized within the MOE structure as a model for improving education and what resources would be required. In order to institutionalize TILO within the MOE system, the TILO team suggested that the MOE establish a central follow-up unit for TILO schools, providing the needed support to coordinate among different departments, starting from the central level and continuing through to the Muderiyas and Idaras.

In June 2013, the TILO technical team conducted a capacity-building workshop for the TDC team to present in detail their experiences and lessons learned in selecting the TILO technology model, procurement evaluation criteria and implementation of the TILO model across the governorates.

Presentations to MOE officials and Subject Matter Experts (SME)

Based on the MOE's request, the TILO team provided several presentations and video conferencing sessions to MOE officials in the central level and across the governorates. During each, TILO provided an overview of each component and related lessons learned and discussed the possibility for the sustainability and expansion of the TILO model.

The TILO team also held a three-day workshop for the MOE Subject Matter Experts (SME) in April 2013. The goal of the workshop was to give the Subject Matter Experts an overview of the TILO components and the impact on participating Idaras, schools, teachers and students. During the workshop, the TILO team provided an orientation to the TILO model, including the technology model, training model, follow-up and support, capacity building and public private partnerships. TILO explained the impact of the model on schools and teaching practices. The workshop was accompanied by a day-long school visit in which the participants could see first-hand the TILO model implemented in a school setting.

Recommendations from the MOE following the presentations to MOE officials and SMEs:

MOE officials had many recommendations for the TILO project to consider before its closure.

- By the end of the project, the following MOE departments should support TILO activities: the Inspection Unit, the Follow-up unit and the Advisors Bureau.
- Maintain and sustain the results of the TILO model in schools.
- TILO should train the experts in the Centre for Curriculum and Instructional Materials Development (CCIMD) on TILO programs. Prepare them as trainers to be able to implement and follow-up on project goals in schools and to participate in the training of other personnel as part of their day-to-day job responsibilities. TILO had planned to do this but was unable to accomplish this training due to the unrest during the summer of 2013.
- Meet with the technical follow-up advisors, each according to their subject, and explain the importance of the project and its benefit to the education process and its three elements—student, curriculum and teacher
- Hold discussions with the curriculum department of the MOE to explain the importance of developing the education curriculum and integrating technology as an effective teaching tool.

- Explain and refer to electronic lesson planning in teacher guides
- Recommendations to expand the TILO model to more schools:
- Obtain approval from the advisor of the Minister for International Relations to implement the project at the Muderiya level by training 10 members from each of the Muderiyas who did not receive TILO training.
- Prepare a memorandum to the Minister of Education with the agreed-upon recommendations. This memorandum was successfully submitted to the Minister.
- Maintain the trainers trained by TILO and use them to train other MOE staff.
- Hold workshops between the MOE Idaras, follow up inspectors and advisors to unify the framework and vision of the MOE.
- Enable the Centre for Curriculum and Instructional Materials Development (CCMID), in collaboration with the MOE in preparing workshops for the teachers, to share the TILO approach and model with non-TILO teachers.
- Refer to the TILO programs and applications in the teacher's guides and the activities notebook as materials to help overcome the difficulties in teaching different subjects.

Strategic planning committee

Based on USAID's request, the TILO team attended planning meetings with the MOE Strategic Planning Committee. At the request of the committee, an MOE delegation visited TILO schools during March 2013. TILO also provided a presentation on TILO components to the MOE Strategic Committee members to show how the TILO model integrates several reform aspects targeted by the Strategic Planning Committee. USAID in collaboration with the USAID-funded basic education projects (TILO, ESP, GILO and STEM) submitted an outline for participation by these projects in the different committee workgroups in the form of technical assistance. Unfortunately, due to the political unrest that began on June 30th, 2013, the committee was put on hold and the Minister of Education was replaced. The change in the Education Minister led to changes in management across the MOE, including the head of the Strategic Planning Committee. As a result, although that the TILO team feels strongly that the TILO contribution to the technology and training aspects of the strategic plan are significant and would be of great benefit to the MOE, TILO was unable to provide this contribution to the MOE before the end of the project.

3.4.3 Capacity Building Workshops

Building the capacity of MOE staff was a major intended result of TILO intervention. One of the main TILO achievements in this respect was coordinating with MOE officials at Muderiya, Idara and school levels to create a scheme for sustainability of technology support at TILO schools after project activities were completed. These efforts helped MOE work out "School Technology Advanced Management Plans (STAMP)". They also produced a "TILO Training and Follow up Plan" in which 1,000 supervisors received capacity building training in providing follow-up and managing TILO technology in schools. Within this scheme, follow-up and support committees were formed at Muderiya levels and were tasked with responsibilities for sustaining TILO scheme at their schools.

In addition, capacity building activities took place throughout the life of the TILO project at all levels in which MOE teachers, supervisors and school managers received numerous trainings in different areas to help implement and sustain TILO practice in their schools and Idaras.

In total, TILO has administered 921 training programs categorized in 22 types that included: Basic IT, Effective Teaching Methods, Introduction, Leading Change, Roles, Responsibilities and Classroom Observation, ICT Integration, ICT Integration for Administrators, Motivating and Rewarding Change, School Technology Advanced Management Plan – STAMP, Training of Trainers, Maintenance troubleshooting, Digital Resources, Discovery, Capacity Building, Classmate and IBM Reading, ICT Integration for Teachers, ICT Skills for School Administrators, Moodle Training, Refreshment Training, PAT, and TILO Community Building.

TILO conducted 353 training programs in technology integration covering 11 topics including: Basic ICT Skills, ICT Integration, ICT Integration for Administrators, Maintenance and Trouble Shooting, Digital Resources, Discovery, Classmate, and ICT Integration for Teachers, IT Skills for School Administrators, Moodle Training, and Intel Training.

Over four years, TILO succeeded in training 22,390 teachers and supervisors in Effective Teaching Methods. 1,908 teachers became Master Teachers and 8,509 teachers and supervisors were trained in Technology Integration. In addition, 3,940 MOE and school administrators were trained in effective management of technology use in schools.

3.4.4 TILO Lessons Learned Session

In February 2013, the TILO team attended a project “Lessons Learned” workshop for all technical staff, which was designed and facilitated by TILO’s partner, Keys to Effective Learning. The objective of the session was to gather team feedback related to TILO components to be shared with the MOE and mainly with our participation in the MOE strategic plan committee. The session was beneficial and provided valuable insight related to lessons learned and recommendations for future interventions. Details of the main lessons learned from this workshop are included in Annex 3B: TILO Lessons-Learned Workshop Recommendations.

3.5 Sustainability, Expansion and Exit Strategy

See Part II Component 1.2—TILO Training, Follow-Up and Support for additional information relating to sustainability.

As part of a decentralized TILO expansion and sustainability effort, TILO conducted Sustainability Workshops during which TILO and local Ministries from different governorates gathered leaders across various departments to plan how they would take responsibility for the tasks associated with managing a TILO model in schools in their Muderiyas and Idaras. As a result of these workshops, TILO received requests from all TILO governorates with School Based Reform (SBR) schools to:

- Expand into new schools

- Work with the central, Muderiya and Idara levels of the Ministry to further strengthen systems to sustain the model at the primary level
- Develop and adapt the model for the preparatory level for regular Arabic-language schools.

Together with local support and feedback, TILO has identified key tools and activities to support expansion and developed methods to use in the process of expansion as a capacity-building system that will enable local ministries and schools to effectively sustain the project's impact in both primary and preparatory schools.

During the first three and a half years of TILO implementation, the project produced clear results and uncovered a way forward for sustainability and expansion. In the first four months of 2011, TILO faced unforeseen delays and complications resulting from the revolution that began on January 25, 2011. The week the revolution began, schools and universities were on midterm break and announced that they would remain closed until further notice. In the absence of police, there were instances of looting and in response, civilians self-organized watch groups to protect neighborhoods. Several TILO schools were robbed. Re-opening schools was delayed by up to a month, and in-school time was decreased for teachers and students in most governorates. Despite the unrest, TILO training continued with teachers, as they wanted to spend their time increasing their skills and to be ready for their students when the schools reopened.

Throughout the year, regular meetings were held with Undersecretaries of Education in TILO-supported governorates to provide capacity building on managing, sustaining and expanding the TILO model, to plan for capacity building workshops and to negotiate strategies to sustain TILO in schools. The goal of these workshops was to work closely with the Muderiya as it identified specific roles and responsibilities related to all elements of the TILO model and delegated staff at the Muderiya and Idara level. During and after these workshops, gaps were identified where additional TILO support was needed.

Several additional meetings took place in governorates such as Qena and Fayoum to focus on follow-up and support and sustainability specific to the MOE demand and planning process.

3.5.1 School Technology Advanced Management Plan (STAMP)

One of the most important steps was the development of the STAMP (School Technology Advanced Management Plan), which is a set of comprehensive management guidelines that provide the framework for the daily management of people and resources affiliated with the TILO model in schools. It also provides detailed procedures for the management of technology, technology facilities and different resources over time.

TILO schools went through two stages of participation. During Stage 1, the project equipped schools with technology and digital resources and delivered hands-on training to teachers and administrators to meet education reform standards. At Stage 2, schools developed a STAMP plan to create and implement a long-term plan to sustain the effective use of technology in their schools.

TILO designed the STAMP which is a planning tool designed to support the regular activities and responsibilities of school principals and others that must be considered in order to sustain the successful use of educational technology in schools. STAMP is aligned with the MOE's National

Strategic Plan and the National Education Standards. Its contents are consistent with and strengthen the activities mentioned in the School Improvement Plans (SIP) and other plans generated by the school to organize their activities and finances. In many cases, going through the process of developing a STAMP, school leaders will improve their reform planning in other areas of the school.

STAMP is maintained by members of a School Committee consisting of school principals, administrators, teachers, board of trustee members, parents, local community members and other stakeholders who understand and take a leadership role in the activities of the school. They will continue to develop and maintain STAMP as part of their reform.

STAMP Components

Many of the components included in STAMP are the same components included in other MOE planning documents. This overlap is intentional. The purpose of STAMP is to highlight the key decisions which need to be made related to maintaining educational technology, keeping operations well-organized, easy to monitor and transparent, and keeping the focus of technology use on teaching and learning. Therefore, the key activities overlap with the core functions of the school.

The components include:

- Technology facilities management
- Recommendations for the daily management of people and resources
- Creation and management of community participation in community learning centers and other community use of resources
- School IT support, maintenance and troubleshooting
- Professional development of teachers
- Partnerships, financial-planning and fundraising considerations specific to education technology

STAMP Implementation

STAMP should be developed and implemented at the school and should be reviewed periodically by the STAMP committee as well as the School Quality Team created through the education reform process. In most cases, these teams include the same people. The STAMP committee should be divided into Component working teams with a facilitator of each team. The teams should consist of the key people responsible for performing the following tasks:

- Review specific objectives, activities and procedures suggested for achieving the relevant goals;
- Review each objective and ask team members to analyze each, breaking it into workable activities to be executed over the duration of the year;
- Discuss the ideas with all members of the team in order to determine what additional information or actions are needed to develop a plan with a set of activities appropriate for each objective;
- Ask the team to decide which member or group of members should be held responsible for carrying out each activity and how it will be done.

STAMP Training

TILO delivered a two-day Sustainability Planning workshop for MOE supervisors, school supervisors, administrators and the follow-up and support team to enable them to:

- Sustain change through the School Technology Management Plan (STAMP)
- Integrate professional development into STAMP
- Review components of effective professional development for technology use
- Make appropriate connections to student learning
- Practice with curriculum-specific Applications
- Plan for new roles for teachers
- Monitor the ongoing process
- Create teacher and Senior Teacher Portfolio Checklists
- Create Meeting Schedule Sign-in Sheet and Meeting Minutes Sheet
- Set a Classroom Visit Schedule

All TILO primary and preparatory and smart schools attended STAMP training.

STAMP Competition

A broad challenge was announced to all Idaras and schools participating in TILO to finalize their STAMP documents and to submit them for participation in a competition that awarded technology products to the winning schools. The awards included the Intel classmate solution, interactive whiteboards and other equipment that TILO received through Public Private Partnerships.

TILO received official letters from each Undersecretary describing the School STAMP evaluation committee and the process that had been put in place to ensure transparency and fairness in selecting the winning schools.

The Idaras and Muderiyas chose the winning schools based upon their review of the School Technology Advanced Management Plan along with a set of criteria. They presented their selection to TILO.

TILO worked with the MOE technology team to distribute the prizes.

This competition exercise provided an indication of how useful STAMP is and how well the Idaras and Muderiyas were willing and able to sustain the program with minimal coaching from TILO.

Lessons Learned

Lessons learned from the implementation of STAMP were:

- The comprehensive nature of (STAMP) guidelines provides a strong foundation for the leaders involved in the TILO project and introduces a tool for continued joint decision-making and planning.
- Because it provides quantifiable methods for tracking progress at all levels, the STAMP enables stakeholders to assess impact along the way and to make decisions about modifications necessary for the success of the reform

- STAMP guidelines, reporting procedures and training recommendations help ensure the sustainability of the TILO project, because educational leaders, including teachers, school management and Idara officials, fully understand the desired outcomes and the procedures to reach them
- STAMP enables government officials to implement the program in other areas in a similar way
- STAMP opened continuous communication and planning with the MOE formally and informally through reporting, monthly meetings, inclusion in training and correspondence
- Procedures and guidelines facilitating communication and strong performance are interwoven with MOE standards and are transparent along domains important to sustainability

3.5.2 Sustainability, Expansion and Exit Strategy⁷

From the beginning of the project, sustainability was a primary goal and consequently a top priority during planning. To ensure sustainability of the TILO project and the reform efforts, TILO initiated a multi-faceted approach to sustainability. Fundamental to this effort was maintaining open communication with stakeholders--MOE, TILO project staff, Technology Development Center (TDC) staff, vendors, school management and teachers. Transparent communication enabled stakeholders to gain an understanding of all components of the project with the aim of building the necessary capacity to continue to manage TILO and similar projects. Committing to open communication and including all parties in the sustainability plan empowered the local government and staff to continue project efforts. A multitude of opportunities for continuous training and growth through the project and throughout the MOE raised the capacity of the many participants.

The sustainability process included the following activities.

1. Conduct sustainability workshops across TILO governorates
2. Expand into prep schools
3. Support MOE expansion into non-TILO schools
4. Cascade training model, i.e. Train the Trainers, administrators, and others with overlapping cycles of training to build MOE capacity to deliver training
5. Share school status reports with MOE so they can follow up on TILO schools
6. Introduce the e-content Moodle-blended foundation training model to the Professional Academy of Teachers (PAT)
7. Align and accredit the TILO training manual
8. Assist in the accreditation of TILO MOE trainers
9. Establish a structured exit strategy per governorate
10. Conduct a series of workshops to fill any uncovered gaps
11. Provide presentation and lessons learned to MOE central level, i.e. Technology Development Center (TDC) staff, Subject Matter Experts (SME), MOE Senior Leaders, MOE strategic committee, etc.

⁷ The details of this initiative and TILO support are described in Annex 3C: Sustainability End of Project Report

These activities led to sustaining the TILO model and gave the MOE the motivation to lead an expansion effort across all TILO governorates.

During the third year of the project, Muderiyas and Idaras approached the TILO team to start expanding in non-TILO schools. Alexandria, Fayoum, Minya and Beni Suef began with solid plans for their expansion efforts. As most of the TILO team at the governorates returned to their positions in different departments at the MOE, the MOE took advantage of their skills to manage the TILO expansion in other schools and Idaras. All four governorates selected schools in their governorates that were ready for expansion. This initiative required that the Idara implement the full TILO model of training, digital resources, and long term support as required in STAMP.

Muderiyas, Idaras and schools worked closely with the training unit for best use of the TILO-trained MOE trainers to conduct training and to work with the Technology Development Centers (TDC) to provide any needed equipment. In order to support the expansion efforts led by the MOE, TILO provided:

- Guidance and review of governorate plans as well as recommendations
- Duplicable CDs of “ToBeTILO” to all expansion schools with the free collection of TILO software
- Training Tool Kits for each expansion school with training materials and supplies to assist teachers in conducting internal training
- Some of TILO’s excess equipment to governorates and departments that are providing ongoing support for TILO expansion

(See Appendix 3C for full details.)

Component 4

Monitoring and Evaluation

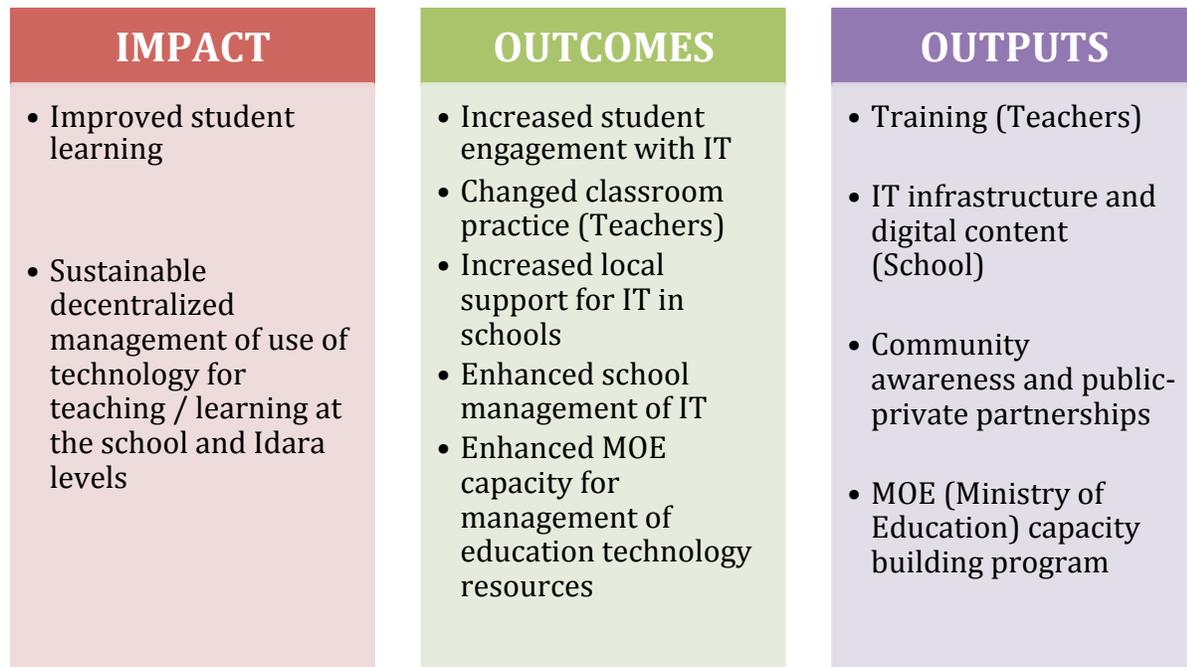
- 4.1 TILO Results Framework**
- 4.2 M&E Methodology and Data Collection**
- 4.3 TILO Instruments and Tools**
- 4.4 Results**

Monitoring and Evaluation (M&E), the fourth TILO component, aimed to monitor the progress of the project and provide regular feedback to the project management on the performance of the project activities. This was done over the life of the program and across its geographical locations to allow the management to make informed decisions for adapting and improving implementation as the project progressed. TILO's M&E process was conducted over four years based on a conceptual M&E framework and a Performance Monitoring Plan (PMP) approved by USAID that were designed to monitor the project's intended results at three levels: impact, outcomes and outputs. Project activities were regularly assessed through baseline and yearly measurements, where information about the project implementation was acquired, analyzed, interpreted, and conclusions were drawn and recommendations presented to the project management.

4.1 TILO Results Framework

4.1.1 Impact, Outcomes and Outputs

The Monitoring and Evaluation (M&E) Advisors and the TILO team developed a comprehensive M&E framework and a Performance Monitoring Plan (PMP) which was designed to measure and report project performance and progress towards the achievement of TILO's goals and to provide evaluation feedback to improve planning and management decisions. The PMP aimed to monitor the outputs of TILO's activities being implemented as well as to evaluate outcomes achieved and long-term impacts. Output measurements showed the implementation of activities, while outcome measurements illustrated to what degree the anticipated results of these activities were achieved. Impact assessments showed the degree to which the overall goal of the project was realized. As per the TILO PMP, M&E measurements followed a structured process based on assessing 40 performance indicators related to the eleven intended results in the three levels noted below:



4.1.2 TILO Monitoring and Evaluation Conceptual Framework

The ultimate impact of TILO on teaching and learning depended on a series of intermediate results or outcomes which were achieved by implementing project activities according to plan. The TILO PMP below presents performance indicators, sources of data, methods of data collection, people responsible for data collection and frequency of data collection that were used to measure progress and impact of project activities. TILO measured progress on 40 performance indicators based on the 11 results noted above. TILO collected data on outputs quarterly and made baseline and annual measurements on outcomes and impact throughout the project. The TILO PMP is shown below.

TILO MONITORING AND EVALUATION FRAMEWORK

Project Components

1. Improve the Quality of Teaching, Learning & IT Management in TILO Schools
2. Public-Private Partnerships
3. Increase Capacity for Management of Technology, especially in MOE

| Project Component | RESULTS | PERFORMANCE INDICATORS | SOURCES OF DATA | METHOD OF DATA COLLECTION | PERSON RESPONSIBLE | FREQUENCY |
|-------------------|---|---|---|--|--|---------------------------------------|
| IMPACT | | | | | | |
| All | 1. Improved student learning | 1.1 Increase on CAPS scores at participating schools | CAPS results | Administration of CAPS | NCEEE in coordination with M&E TILO | Baseline & annual |
| All | 2. Sustainable decentralized management of use of technology for teaching / learning at the school and Idara levels | 2.1 Data driven decisions at the Idara & school levels | Project reports, school records, MOE reports, policies, Muderiya and Idara staff, school administration and teachers | Organizational Impact Assessment Study (document review, focus groups and interviews with MOE staff) | Capacity building consultant with M&E team | Baseline, mid-project, end-of-project |
| | | 2.2 Effective use of technology for teaching and learning in schools | | | | |
| | | 2.3 Sustainable use of resources of education technology in schools: 2.3a. functioning maintenance system, 2.3b. plan & budget for IT resources periodic updating | | | | |
| | | 2.4 Schools introducing technology-based innovations | TILO Database | Field monitoring reports recording technology innovations introduced at TILO schools | TILO Software Application Manager | |

| Project Component | RESULTS | PERFORMANCE INDICATORS | SOURCES OF DATA | METHOD OF DATA COLLECTION | PERSON RESPONSIBLE | FREQUENCY |
|---|---|--|------------------------------------|---------------------------------------|-----------------------------|-------------------|
| OUTCOMES: INTERMEDIATE RESULTS | | | | | | |
| Increased Student Engagement with IT | | | | | | |
| 1 | 1. Students engaged in active learning powered by technology | 1.1 Level of technology integration in student learning activities | Video tapes of TILO sample classes | Video Classroom Observation form | M&E team | Baseline & annual |
| 1 | 2. Students develop positive attitudes towards technology | 2.1 No. of students with personal email addresses 2.2 Students' perceptions towards use of technology in learning | Students | Interviews | M&E team, Governorate team, | Baseline & annual |
| Changed Classroom Practice | | | | | | |
| 1 | 3. Teachers integrating technology into student-centered methods | 3.1 Percent increase in effective classroom teaching practices as measured by SCOPE+ | SCOPE+ results | Administration of SCOPE+ ⁸ | M&E team, Governorate team | Baseline & annual |
| | | 3.2 Level of IT integration in teaching materials | Teacher portfolios | Teacher Products Rubric | M&E team, Governorate team | Baseline & annual |
| 1 | 4. Teachers acquire positive attitudes to integrating technology into instruction | 4.1 Level of confidence of teachers in using IT in teaching | Self assessment data | Questionnaire & Interviews | M&E team, Governorate team | Baseline & annual |
| | | 4.2 No. of teachers with personal email addresses | | | | |
| 1 | 5. School leadership supporting teachers' use of technology | 5.1 Level of satisfaction of teachers of administrators' technology support | Satisfaction data from teachers | Questionnaire | M&E team, Governorate team | Baseline & annual |
| 1 | 6. Digital content used in the classroom | 6.1 Range of digital material / resources used by teachers & students | Teachers and students | Questionnaire and Interview | M&E team, Governorate team | Baseline & annual |

⁸ SCOPE+ is SCOPE modified for TILO

| Increased Local Support | | | | | | |
|---|--|--|---|---|----------------------------|-------------------|
| 2 | 7. Parents support use of computers in teaching | 7.1 Level of generation of funds/resources for IT by BOTs in TILO schools | School records/visits | Document review, interviews | M&E team, Governorate team | Baseline & annual |
| 2 | 8. Opportunities for parents and community members to use technology | 8.1 Degree of utilization of school IT resources by community | School records/visits | - Document review - interviews | M&E team, Governorate team | Baseline & annual |
| 2 | 9. Public-Private-Partnerships increase resources and support of technology use in schools beyond TILO's provision | 9.1 Monetary (\$) value of PPP interventions | Project reports | Document review | M&E team, TILO team | Baseline & annual |
| | | 9.2 Range of products and services provided by PPPs | | | | |
| Enhanced School Management of IT | | | | | | |
| 1 | 10. School administration managing educational technology resources effectively | 10.1 Percent increase in school technology support as measured by T6. | Schools Principals / Managers of Technology | Administration of T6 | M&E team, Governorate team | Baseline & annual |
| Enhanced MOE Capacity for Management of Education Technology Resources | | | | | | |
| 3 | 11. Increased capacity in managing education technology resources at MOE Muderiya, Idara and school levels | 11.1 Key new technology management practices adopted and identifiable in the workplace | MOE & school administrators | Interviews with MOE; Observations of office operations | M&E team, Governorate team | Baseline & annual |

| OUTPUTS: SHORT TERM RESULTS | | | | | | |
|--|--|---|-----------------|--------------------------|------------------------|-----------|
| Training | | | | | | |
| 1 | 1. Teacher / supervisors trained in effective teaching methods | 1.1 No. teachers / supervisors trained in effective teaching methods | TILO database | Project reports | SW Application Manager | Quarterly |
| | | 1.2 No. teachers trained as Master Teachers | | | | |
| | 2. Teachers and supervisors trained in how to integrate technology | 2.1 No. teachers / supervisors trained in technology integration | | | | |
| | | 2.2 No. & type (level1 & level2) of training programs | | | | |
| 3. Teachers and supervisors mentored and supported in integrating technology | 3.1 Measures of support provided for each group within the TILO Training Support Program | Supporting documents on follow up of each group | Document review | M&E team | | |
| 1 | 4. School administrators & BOTs trained in effective management of technology use in schools | 4.1 No. of administrators & BOTs trained in effective management of technology use in schools | TILO database | Project reports | SW Application Manager | |
| | | 4.2 No. & type of training programs | | | | |
| IT Infrastructure & Digital Content | | | | | | |
| 1 | 5. Schools equipped with IT | 5.1 No. of equipment delivered by TILO | TILO database | Field monitoring reports | SW Application Manager | Quarterly |
| 1 | 6. Schools connected to the Internet | 6.1 No. of schools with Internet access by type of connection | TILO database | Field monitoring reports | SW Application Manager | Quarterly |
| | | 6.2 Bandwidth of internet connection | TILO database | Field monitoring reports | SW Application Manager | Quarterly |
| | | 6.3 Number of computers online | TILO database | Field monitoring reports | SW Application Manager | Quarterly |
| 1 | 7. Digital content developed/selected | 7.1 No. & type of digital resources developed / provided by TILO per school | Project reports | Document review | M&E team, TILO team | Quarterly |

| Community Awareness & PPPs | | | | | | |
|---------------------------------------|--|--|-----------------------------|-----------------|----------|-----------|
| 22 | 8. Parents and communities participate in awareness raising activities | 8.1 No. of awareness raising activities conducted | Project reports / documents | Document review | M&E team | Quarterly |
| | | 8.2 No. of participants in awareness raising activities | | | | |
| | 9. Public-Private Partnership agreements supporting IT use in schools | 9.1 No. of PPP agreements in place | Project reports / documents | Document review | M&E team | Quarterly |
| MOE Capacity Building Program | | | | | | |
| 3 | 10. A strategically targeted capacity building program for management of technology in place in the MOE | 10.1 Detailed work plan for capacity building program with key management areas for strengthening identified | Project reports | Document review | M&E team | Cancelled |
| | | 10.2 Organizational assessment of MOE system of management of technology completed | Cancelled | | | |
| 3 | 11. MOE Muderiya and Idara administration trained to manage technology effectively, and plan and allocate education resources for technology | 11.1 No. of MOE administrators trained | Project reports | Document review | M&E team | Quarterly |
| | | 11.2 No. & types of training programs | Project reports | Document review | M&E team | Quarterly |

4.2 M&E Approach and Methodology:

4.2.1 Methodology

Measurements for monitoring TILO activities consisted of several studies conducted at different times based on the purpose of each study. The studies monitored the performance of TILO teachers, students, and school management along the 40 performance indicators identified for assessing the 11 intended results at levels of output, outcome and impact.

At the **impact level**, six performance indicators were analyzed related to two intended results. A major study was conducted at the end of the project activities which measured the change in students' learning performance by the change in the mid-year exam marks of students in three school grades in five subjects over four school years in both SBR Primary and TSS Prep schools. This study was specifically introduced to address the impact level intended result "Improved Student Learning." The second impact-level result, "Sustainable decentralized management of use of technology for teaching / learning at the school and Idara levels," was addressed by through a number of studies.

At the **outcome level**, 15 performance indicators were analyzed related to five intended results. A multi-component longitudinal study was conducted over the life of the project which monitored the change in teaching and learning at TILO schools along a number of dimensions. It assessed teachers' performance in implementing reform-based teaching practice, their attitudes and confidence in using technology and implementing modern methodology of teaching and learning, and the change in their students' learning behavior to match teachers' shift to using reform-based practices and technology to improve teaching and learning. This study included several measurements, starting with baseline measurements followed by three annual measurements which concluded with a "sustainability" measurement one year after the completion of the TILO intervention in primary schools. The sustainability measurement used several tools including the Standards-Based Classroom Observation Protocol for Egypt (SCOPE) instrument (see details below), as well as teachers' and students' surveys, and focus groups and interview protocols for school management.

At the **output level**, 19 performance indicators were analyzed related to four intended results. M&E information was gathered through document review activities that took place as needed based on the reporting cycle adopted by TILO. Data was obtained through TILO reporting cycles about TILO's delivery of training programs, number and types of participants at different times and locations, status of provision of hardware and software to schools, activities related to building up relationships between TILO and the community and establishing Public Private Partnerships with relevant entities in the community.

A set of documents was included within the M&E framework as a means of acquiring information for the three levels of results. These documents were: field reports, regular project reports, and the TILO database.

Implementing the TILO PMP over the life of the project was a dynamic process that adapted to changes in the implementation strategy, particularly as a result of the TILO extension in its fourth year to include prep schools, changes within the MOE, and in response to the situation in

Egypt following the January 2011 revolution. The implementation of the TILO monitoring plan (M&E activities and measurements, data sources, data collection frequency, tools, personnel and the process for managing data collection runs) was modified a number of times and adjusted as needed to accommodate changing circumstances over the course of the project. Over the course of the project, certain data collection tools were discontinued and others were added to adapt to changing implementation circumstances.

4.2.2 Subjects

M&E activities were conducted through baseline and annual measurements over four years of the project for SBR Primary, TSS Prep and SBR Prep schools. Although the project worked in nine governorates, the M&E assessments were conducted in only seven governorates: Greater Cairo (including 6th of October, Helwan and Giza), Alexandria, Beni Suef, Minya, Fayoum, Qena, and Aswan. Assiut was not included due to the very small scale intervention in that governorate, and Giza was included within Greater Cairo. Interventions were carried out in two cohorts. Cohort 1 schools (in Alexandria, Beni-Suef and Greater Cairo) began interventions in 2008. The TILO team learned from the successes and challenges faced during this period and made adjustments to the technology and training models before rolling out the interventions to Cohort 2 schools (in Fayoum, Minya, Qena and Aswan) in 2009. Of the 277 SBR Primary and TSS Prep schools, 57 were selected for the M&E activities, as well as 33 of the 127 SBR Prep schools. TILO used a combination of eight tools developed by TILO as well as two instruments developed by USAID. Subjects for the M&E activities included Idara and Muderiya Directors, School Directors, teachers of core subjects, and students of different grades.

4.2.3 Data Collection

A total of 60 data collectors participated in TILO measurements over the life of the project. They were grouped into two groups: a) 31 TILO Tools data collectors and 29 SCOPE MOE Supervisors. The 31 TILO Tools data collectors all lived in or near the seven governorates included in TILO M&E measurements. The SCOPE group consisted of 29 ERP SCOPE-trained MOE Supervisors who lived and worked in the target seven governorates. They were chosen from non-TILO Idaras to maximize the objectivity and fairness of the classroom observation process. The two groups were oriented on the tools and their administration prior to the start of the data collection activities. All data collection activities at TILO schools were carefully coordinated by the TILO office with the MOE Muderiyas and Idaras involved. Measurements were conducted on an annual basis over a four year period, from October 2008 – April 2012.

4.3 TILO Instruments and Tools

The TILO PMP included a number of data collection tools designed to accommodate the diversity and the large number of intended results to be assessed for monitoring the project activities. Eight of these instruments were developed by TILO M&E advisors and were labeled TILO Tools T1-T7 and T4++. The other tools, Critical Thinking, Achievement and Problem Solving (CAPS) and Standards-Based Classroom Observation Protocol for Egypt (SCOPE), had been previously produced, piloted and used by USAID projects in Egypt. A description these tools is provided in the following section.

4.2.1 TILO-Produced Instruments and Tools

Originally, seven TILO instruments were designed to gather both quantitative and qualitative data related to the project's intended results. The instruments were set to be administered for baseline and yearly measurements within a longitudinal study along the project lifetime. All TILO tools were produced in English and translated to Arabic for administration. Most of the seven TILO tools were used for the first three years of the project (from October 2008 – April 2011). However, when the TILO extension was approved by USAID (to focus on prep schools), the PMP was modified to fit the new extension scope. Several of the TILO tools were combined into an eighth tool, T4++, which was administered for the October 2011 and April 2012 measurements, along with the USAID-SCOPE tool (described in Section 1.2.2). The eight TILO tools are described below.

T1--Teacher Product Rubric Developed to assess the desired outcome of increasing teachers' performance in integrating technology into student-centered methods, this tool assessed the content of teachers' portfolios of ICT integrated teaching materials produced and/or used in their classrooms. This tool was administered once in the first year but was discontinued later due to logistical difficulties.

T2--Teacher Focus Group Protocol Developed to acquire data on two levels: at the *impact* level by capturing "sustainable decentralized management use of technology for teaching/learning at the school and Idara levels" and at the *outcome* level by capturing "changed classroom practice." T2 was administered as planned for baseline and yearly measurements until the Year 3 measurement in April 2011. During the TILO extension period, T2 was rolled into the T4++ instrument.

T3--Student Focus Group Protocol Developed to collect data on two TILO outcomes: increased student engagement with ICT and changes in classroom practice. T3 was administered for the baseline and for three consecutive yearly measurements but was discontinued during the extension.

T4--TILO Teacher Questionnaire and Survey T4 was designed to elicit information from TILO teachers about their classroom practice. T4 was administered for baseline and the first three yearly measurements (through April 2011) and then T4++ was introduced for the measurements during the extension period.

T5--TILO Class Video Observation Tool Designed to acquire information about increased student engagement with IT to evaluate the desired outcome of “level of technology integration in student learning activities.” Information was obtained through video recording of TILO classes and having trained educators watch the video recordings to assess the level of technology integration in their lessons. This tool was administered only once during the first year and was discontinued later as the cost of administration was too high and the availability of sophisticated equipment such as video cameras with directed microphones for clear voice videotaping was limited. In addition, the activity was distracting for students during the duration of the lesson. The SCOPE class visit protocol was used afterwards as a substitute.

T6--TILO Technology Management Assessment Protocol Designed to acquire information from TILO School Directors about the desired impact of “sustainable decentralized management of use of technology for teaching/learning at the school and Idara levels” and two desired outcomes of increased local support and enhanced school management of IT. T6 was administered as planned for the baseline and three yearly measurements, but was discontinued during the extension period. During the extension period, necessary data about management of technology in schools was obtained through teachers’ reporting on the T4++ instrument.

T7--Idara and Muderiya Interview Protocol Designed to acquire information about how the MOE management at the Muderiya and Idara levels support technology in education and how they perceive TILO’s intervention in their schools. T7 was administered for the baseline and two yearly measurements, but was discontinued later due to the unstable situation at the Idara and Muderiya levels after the January 2011 revolution.

T4++--During the TILO extension, T4 was modified to T4++ to accommodate the new mandate and extension granted by USAID for implementing the TILO prep school model. The questionnaire was expanded to address teachers’ perception of and confidence in using technology in teaching, attitudes towards using technology, levels of satisfaction with their management’s support for technology, mastering reform-based pedagogy in their classrooms, and using technology for teaching and learning. The T2 and T6 tools were also consolidated into the T4++ tool. This tool was administered for the October 2011 and April 2012 measurements

4.2.2 USAID-Produced Instruments

The TILO PMP also included two USAID-produced measurement tools: CAPS and SCOPE. The two instruments were used within the M&E framework to particularly assess the project’s impact on teachers and students.

Critical Thinking and Problem Solving (CAPS) Chosen to acquire information about the desired impact on improved student learning. CAPS was administered for TILO only once through the USAID-funded Education Reform Project (ERP) in May 2010, but the students’ scores on the tests were never submitted to TILO by the MOE. As a result, TILO decided to devise another method for assessing the impact of the intervention on the academic performance of TILO students: The Student Mid-Year Marks Study, which was used to draw conclusions about changes in students’ performance in TILO schools.

SCOPE The Standards-Based Classroom Observation Protocol for Egypt (SCOPE) was designed to “*assess teachers’ use of practices that are characteristic of the standards and reform-based teaching methods outlined in the National Standards for Education in Egypt, and*

*to also measure student behaviors that reflect the development of problem solving and critical thinking skills.*⁹ SCOPE was included in TILO measurements to assess changes in classroom practice as a result of teachers' integration of technology in classes. SCOPE was administered as planned for all TILO measurements that took place throughout the life of the project.

4.2.3 Additional Data Collection Tools Introduced

Ten additional data collection tools were introduced during the course of the project to address the changing needs of the project. Adaptive changes in the M&E plan were not limited to modifying tools; there were also a number of studies designed to demonstrate the monitoring of TILO activities that were introduced to the intervention during the implementation period.

The Discovery Channel Global Education Partnership (DCGEP) Instruments DCGEP partnered with TILO to provide educational videotapes in a number of subjects that were translated into Arabic, approved by the MOE and mapped to the Egyptian curriculum. The videos are an excellent resource, used in TILO classrooms as a tool for improving learning outcomes. Data related to the implementation of the DCGEP intervention was collected, translated to English, digitized and submitted to the DCGEP for analysis. No data analysis or reporting was required from the TILO M&E team in this respect.

IBM IBM partnered with TILO under the Public-Private Partnerships component to provide TILO schools with access to IBM's web-based Reading Companion program and the KidSmart Young Explorer hardware units. Four tools were created to collect data about this partnership. TILO designed and used a teacher survey and a student focus group protocol for both Reading Companion and KidSmart. IBM tools became part of TILO tools and were administered at data collection runs with the rest of the data collection activities. The data was especially useful to IBM, since TILO schools were the first to use IBM's resources in Egypt.

SCOPE Qualitative Study Three tools were introduced to respond to the Standards-Based Classroom Observation Protocol for Egypt (SCOPE) data requirements for the Qualitative Study: a trainers' focus group protocol, a team leader interview protocol and a SCOPE supervisor focus group protocol. These tools were used only once, in September 2012, to obtain data on the context of the SCOPE measurement in April 2012 to support the data analysis of the quantitative data obtained through administering SCOPE observations for the sustainability year measurement.

Students Mid-year Marks In the absence of CAPS data, TILO designed a new study to obtain and analyze students' mid-year marks in five subjects across four school years for three school grades at the SBR primary level (grades 3-5) and TSS prep level (grades 7-9). The analysis was then used to draw conclusions about changes in students' performance in TILO schools. No new or TILO-specific data collection tools were introduced for the Student Marks Study. Schools' records of student marks for mid-year exams were gathered from schools and digitized for analysis.

⁹ ERP SCOPE IV Report, 08

4.4 Results

The main findings from the studies and assessments conducted are presented below against of the main intended impact, outcomes and outputs results identified for achieving the project's goal. A full assessment of TILO's performance and a descriptive analysis of each result as per the project's PMP can be found in the TILO Final M&E Report.

4.4.1 Impact Level Results:

As per the TILO PMP, two results at the impact level: "*improved student learning*", and "*sustainable decentralized management of use of technology for teaching/learning at the school and Idara levels*", were to be assessed by examining seven performance indicators.

Impact Result 1: "Improved Student Learning"

Improved student learning was intended to be assessed by examining one performance indicator, the increase on Critical Thinking, Achievement and Problem Solving (CAPS) test scores at TILO schools (impact PI 1.1). However, as indicated in previous sections, CAPS results could not be used for TILO purposes and therefore a substitute indicator was introduced: the "the increase in TILO students' mid-year exam marks."

A Student Marks Study was conducted at the end of the project which examined TILO's impact on students' average mid-year marks along five independent variables: performance over time, training, governorate, subject, and grade. The two variables that were examined in detail for improvement over time were "performance over time" and "training." The performance over time variable was analyzed at the baseline, during each year of intervention, and one year after the end of intervention in the TILO schools (referred to as the "sustainability year.") The training variable was analyzed at the baseline and by looking at the average mid-year marks during the period of intervention. This analysis examined two categories of TILO teachers: those taught by TILO Trained Teachers (who were directly trained by TILO Master Trainers) and those taught by TILO Locally Trained Teachers (teachers at TILO schools who were trained by the TILO Trained Teachers). It was not possible to disaggregate the baseline data for the "governorate," "subject," and "grade" variables within the available resources of this study. The major findings for "performance over time" and "training" are provided below. All comparisons reported are statistically significant at a level of 0.05 or within a 95% confidence interval.

Performance Over Time:

SBR Primary schools: The academic performance of TILO students at SBR Primary schools showed an overall improvement over the intervention period compared to the baseline measurement in 2008-2009. TILO students' performance also generally improved more over the course of the intervention than Control students¹⁰.

The greatest improvement of average mid-year marks was 9.8%, from 61.4% at baseline to 71.2% during the final intervention year in 2010-2011. Year 2011-2012, (one year after the end

¹⁰ Non-TILO schools selected by Idaras to provide marks representing the norm of students' performance in the Idara

of interventions, otherwise called the sustainability year), showed a slight drop of 3.8% from the previous year. However, TILO students' performance during the sustainability year was still 6% higher than the baseline. This pattern of performance indicates of the success and potential sustainability of the TILO model.

The average mid-year marks for Control school students improved over the course of the intervention, with the greatest improvement being 6.3%, from 64.6% at baseline to 70.9% during the final intervention year in 2010-2011. During the intervention years, TILO students' maximum improvement was higher than that of Control school students (9.8% improvement versus 6.3% improvement).

In the 2011-2012 sustainability year, the average mid-year marks for both TILO and Control school students dropped from the previous year. This can in part be attributed to the effects of the 2011 revolution in Egypt, which certainly impacted the education system and schools along with all other sectors. The drop for TILO schools was greater than Control schools, which is also understandable as it was the first year in which the schools did not receive dedicated support from TILO.

TSS Prep schools: The academic performance of TILO students at TSS Prep schools showed an overall improvement over the intervention period compared to the baseline measurement in 2008-2009.

The baseline measurement (2008-2009) for Control school students was lower than TILO students, at 63.3%. The average mid-year marks for Control school students improved over the course of the intervention, with the greatest improvement of 17% in the 2009-2010 year (from 6.3% at baseline to 80.3%). The improvement of Control schools students was overall higher than that of TILO students. A possible reason for this is the fact that these schools also received interventions from other sources over the course of the TILO project, which could have affected their results.

The average mid-year marks for TILO students improved over the duration of the TILO project and ended with an improvement of 13.7%, from 69.3% at baseline to 83% during the sustainability year in 2011-2012. The fact that TILO students continued to show improvement one year after the end of the interventions is a positive sign for the sustainability of the model.

Training:

SBR Primary Schools: The average mid-year marks of students in TILO SBR Primary schools showed overall greater improvement over the course of the intervention than those in Control schools. Also, students taught by TILO Locally Trained teachers performed better than those taught by TILO Trained Teachers.

The average mid-year marks of TILO students at the baseline was 3.2% lower than that of Control school students. This is likely because the Control schools chosen were specifically selected by the MOE and happened to be some of the best schools in the Idara. However, a comparison of baseline data with the average mid-year marks showed that the performance of TILO students improved more than Control school students over the course of the intervention. The average mid-year marks of Control school students increased by 4.6% points from the baseline (from 64.6% to 69.2%). In TILO schools, the average mid-year marks of students taught

by TILO Trained teachers¹¹ improved by 6.3% points from the baseline (from 61.4% to 67.7%), and those of students taught by TILO Locally Trained teachers¹² improved by 9.3% points (from 61.4% to 70.7%).

An interesting finding is that the average mid-year marks of students of TILO Locally Trained teachers were even higher than those taught by TILO Trained teachers. This was arguably a result of the high motivation of TILO Trained Teachers to pass on their knowledge to their colleagues. They knew the challenges their colleagues were facing and were familiar with the teaching environment, which allowed them to address their problems in a relevant manner. Additionally, the TILO Trained Teachers were experts in their specific subject areas and were able to provide more targeted support to TILO Locally Trained teachers than TILO Master Trainers were able to provide to them. This suggests that the TILO's cascade model for training (training some teachers directly and having those teachers train others in their school) worked well.

TSS Prep Schools: In TSS Prep schools, the average mid-year marks of students of TILO Trained teachers showed greater improvement over the course of the intervention than those from Control schools. The average mid-year marks for TILO students at the baseline was 6% higher than that of Control school students. A comparison of baseline data with the average mid-year marks over the course of the intervention showed that the performance of students of TILO Trained teachers improved more than Control school students. The average mid-year marks of Control school students increased by 11.8% points over the course of the intervention (from 63.3% to 75.1%). In TILO schools, the average mid-year marks of students taught by TILO Trained teachers improved by 13.1% points (from 69.3% to 82.4%). The average mid-year marks for students of TILO locally trained teachers improved by 5.7% points (from 69.3% to 75%). This group also showed improvement but not as much as the Control schools students or students of TILO Trained teachers.

Impact Result 2: Sustainable Decentralized Management of Use of Technology for Teaching/Learning at the School and Idara Levels

This impact level result was assessed by examining five indicators:

- Data driven decisions at the Idara and school levels**
- Effective use of technology for teaching and learning in schools**
- Sustainable use of resources of education technology in schools:** Functioning maintenance system (measurements conducted for SBR Primary and TSS Prep)
- Sustainable use of resources of education technology in schools:** Plan and budget for IT resources periodic updating
- Schools introducing technology-based innovations**

This result evaluated the use of technology for teaching and learning as well as decision-making, and the sustainable use of resources for maintaining and supporting education technology in

¹¹ TILO teachers trained by TILO Master Trainers

¹² TILO teachers trained by TILO Trained Teachers

schools. The specific findings by indicator are presented in the TILO Final M&E Report. The main findings for this result are provided below and relate to both SBR Primary and SBR Prep schools.

- ***Use of technology at school and Idara levels:*** Both schools and Idaras significantly increased their use of technology for making data-driven decisions. Schools reported a more effective use of technology over the course of the TILO interventions, and were satisfied with the support received from their school management, Idaras and Muderiyas. A main reason cited was the inclusion of school managers, Idara and Muderiya supervisors in the TILO trainings, which allowed them to better cater to the needs of the schools. Teachers reported both using the resources they were provided and taking the initiative to provide e-resources themselves. This is a good indicator of teachers' engagement and interest in using technology in their classrooms and a positive sign for their sustaining these practices after the end of the project.
- ***Perceptions of technology:*** Both teachers' and students' perceptions of technology use in the classroom improved significantly over the TILO project. Teachers reported greater levels of confidence and competence in using technology and stated that using technology had changed their role to facilitators rather than lecturers. Students commented that their teachers' use of technology helped them to feel freer to work better both independently and in teams. Teachers, on their part, reported that students were more engaged, attentive and collaborative. These findings suggest that the technology provided through the TILO approach was successful in engaging students' attention and desire to remain in school.
- ***Integrating technology into the teaching-learning process:*** While technology was certainly useful to teachers in their teaching, it was clear from the results that the teachers were able to use the technology in appropriate ways because they had first been trained on *how to teach well*. In the TILO model, technology was not considered an add-on but was consciously integrated into the curriculum at different grade levels. It was also included only after teachers had been trained on basic pedagogical techniques. Teachers reported very positively about the trainings they received on topics such as student-centered teaching, classroom management, etc. They reported that they adopted active learning, creative thinking, and problem solving strategies in the classroom when working with technology. This finding suggests the soundness of the TILO model in terms of using technology as a tool to enhance learning, rather than an end in itself.
- ***Sustainable management of resources:*** While TILO was successful in increasing the effective use of technology at the school level, control of financial resources was not decentralized and financial allocation of technology resources was conducted primarily at the central level. This will make it difficult for Idaras and schools to plan financially for the proper maintenance and support of the technology in their jurisdictions.
- ***Phasing of interventions in cohorts:*** The M&E results showed that Cohort 2 schools performed better than Cohort 1 and showed greater improvement in all categories evaluated

through the M&E process. This corroborates the concept of working in phases – starting with a pilot, making necessary adjustments, and then scaling out to the remaining target areas. After piloting in Cohort 1 schools, the TILO team made adjustments to both the technology and training models, and the findings show that these adjustments made a difference not just to the smooth implementation of interventions in Cohort 2 but also to the results of these interventions.

4.4.2 Outcome Level Results:

As per the TILO PMP, five results were reviewed at the outcome level: *increased student engagement with IT; changed classroom practice (Teachers); increased local support for IT in schools; enhanced school management of IT; and enhanced MOE capacity for management of education technology resources.*

Increased student engagement with IT: The data revealed that the level of technology integration in students’ activities increased in TILO classes at both SBR Primary and SBR Prep schools, and their perceptions of using technology for learning showed more enthusiasm and acceptance.

Changed classroom practice (Teachers): SCOPE results showed substantial improvement at the end of the project measurements. Instructional technology was made available for teachers and students at TILO schools and the level of technology integration in their materials increased through the availability of and training to use digital resources provided through TILO. Teachers’ level of confidence in using technology for teaching increased at TILO schools and teachers reported greater satisfaction with the support they received from their school management. Digital resources made available through TILO were also very much appreciated by teachers and by students. In addition, teachers also reported contributing to the e-resources in their classes by downloading pictures, e-learning materials, and video tapes.

Increased local support for IT in schools: This result was largely fulfilled through the PPP component of the project. The monetary value of PPPs reached almost \$9.5 million by engaging 13 organizations in 25 partnerships with TILO. The PPPs enabled the leveraging of additional resources that expanded and supported project activities, and the value of resources leveraged amounted to almost 30% of the project’s ceiling.

Enhanced school management of IT: This result was assessed through feedback from teachers. Overall, teachers’ responses were positive and indicated that the schools’ capability and attitudes about managing technology for teaching and learning had developed a great deal over the course of TILO interventions and resulted positively on teachers’ and students’ attitudes and confidence in using technology in their teaching and learning.

Enhanced MOE capacity for management of education technology resources: This result was primarily analyzed through project reports on the capacity building activities for the MOE. These included developing a workplan for capacity building and training MOE administrators. The data showed that TILO successfully the indicators related to this result.

4.4.3 Output Level Results:

As per the TILO PMP, four results were reviewed at the outputs level: *training (teachers); IT infrastructure and digital content (School); community awareness and public-private partnerships; and MOE capacity building program.*

TILO successfully fulfilled all indicators related to the provision of training for teachers, administrators at the school level and most Idara and Muderiya level trainings. Only certain Board of Trustee trainings did not take place as they were planned regarding activities related to community support. TILO has successfully satisfied the indicators relating to IT infrastructure and digital resources provision. Indicators relating to community awareness and PPPs were satisfied and even exceeded. Regarding MOE capacity building, TILO has produced a plan for MOE capacity building. Unfortunately, the final capacity building workshop due to take place in August 2013 was cancelled due to the political instability in the country.

Details on these output indicators can be found in Annex 4A: List of USAID indicators and achievement of targets and in the TILO Final M&E Report.

4.4.4 Conclusions and Recommendations

Overall Conclusion

The findings of the M&E measurements which were conducted over a four-year period during the TILO project indicate that TILO has successfully achieved almost all its intended results at the outputs, outcomes and impact levels. The project has shown that technology must not be seen as an add-on or a goal in itself. It should not supersede pedagogy in classes or be introduced into schools as a separate product. Rather, it should be seen as a tool to be integrated into all aspects of the system to enhance the teaching and learning process. Similarly, in order to make sure that an approach is accepted and understood by all stakeholders, and institutionalized within the system, it is essential to involve not just teachers but management staff at all levels (school, Idara, Muderiya and the central MOE). If the buy-in of all stakeholders is not ensured early in the process, the interventions will not survive the duration of the program. TILO has produced a model that shows positive signs of being both sustainable and replicable within the Egyptian education system. The fact that, by the end of the project in September 2013, the MOE had begun to expand the TILO model by itself in 288 non-TILO schools (40 in Fayoum, 213 in Minya, 14 in Beni Suef and 21 in Alexandria) is testament to its success.

Main Recommendations

- Replicate the Student Marks Study in 2014 and 2015 in TILO schools which have not received further interventions in order to see if the impact of the TILO activities have been sustained.
- Include other relevant stakeholders (such as Idara and Muderiya education officers as well as school principals) in interventions involving training of teachers. This makes a big difference in terms of securing their buy-in and their engagement during the intervention, as well as their interest in and ability to continue to support the initiatives after the end of the project.

- Consider ways to decentralize decision-making about the allocation of financial and technology resources to ensure the sustainability of TILO interventions.
- Use a phased approach to implementing interventions so that adjustments can be made to address any problems identified in a pilot before the model is rolled out widely.

ANNEXES

Component 1 Annexes

- 1-A School Application Template
- 1-B School Evaluation Template
- 1-C Criteria for TILO School Selection
- 1-D Master Trainer Application
- 1-E List of TILO Primary, TSS and Prep Schools by Governorate and Idara
- 1-F List of Accredited Schools
- 1-G List of Digital Resources and Descriptions
- 1-H Summary of TILO Training Modules
- 1-I Example of Follow Up and Support Tool
- 1-J SBR and TSS technology packages
- 1-K Snapshot of TILO Training Model

Component 2 Annexes

- 2-A IBM Reading Companion Case Study
- 2-B Intel Classmate PC Case Study
- 2-C PPP Leverage Summary

Component 3 Annexes

- 3-A School Technology Advanced Management Plan (STAMP) Package
- 3-B TILO Lessons-Learned Workshop Recommendations
- 3-C Sustainability End of Project Report

Component 4 Annexes

- 4-A List of USAID M&E Indicators and Achievement of Targets

Annex 5: Case Study of TILO