

Vocational Training in the Arab Republic of Egypt Combines Technical and Innovation Skills for Agriculture

Charles J. Maguire, Consultant

SYNOPSIS

A pilot intervention in 25 agricultural technical (secondary) schools in Upper Egypt introduced students to higher-level cognitive skills including problem-solving, critical thinking, and decision making, as well as practical training, and grew into a four year project (2008–12) involving 54 such schools. The project was funded by USAID with US\$4.9 million and implemented by the Midwest Universities Consortium for International Activities (MUCIA) from 2003 to 2007. The reforms involved pedagogy, practical training skills, and school management. Using technical school farms to train students in the production of export crops proved difficult to implement. On the other hand, the Supervised Internship Program, which enabled students to participate in practical activities on commercial farms and with fruit and vegetable producers and exporters, proved very successful.

CONTEXT

Egypt has 130 secondary-level agricultural technical schools (ATS), each with an average enrollment of 2,750 students. These vocational agricultural high schools have about 154 teachers each, of which 42 percent teach agricultural courses. The teachers are organized into technical departments that include field-crop production, livestock production and animal health, horticulture, agricultural economics, and agricultural mechanics.

All ATSs follow the same basic curriculum, and teachers prepare students for standardized tests at the end of each school year. Most technical agricultural teachers have had no training in pedagogy or preparing lesson plans. Teaching features lectures and rote learning, so little attention is paid to higher-level cognitive skills. Because graduates of ATSs are poorly prepared to use the knowledge and skills obtained in the courses, their employment level is very low. Teaching

equipment is in short supply, and audio-visuals are rarely used. Each school has a farm of about 25 acres, but it is not used for practical demonstration or practice by students.

PROJECT OBJECTIVES AND DETAILED PROJECT COMPONENTS

The pilot project aimed to improve teaching methods used by over 1,600 agricultural teachers in the 25 selected ATSs. It would provide lesson plans, teaching aids, and overhead projectors. It would also introduce active learning, which would promote instructional activities involving students in doing things and thinking about what they were doing. Educators moved from knowledge recall and comprehension toward more advanced cognitive skills, including analysis, synthesis, and evaluation of information and knowledge to solve problems. The school farms enabled students to produce export crops and provided them with the skills to become mid-level technicians on agribusiness farms. The project approach included seven steps, described in box 2.13. See also IAP 3.

INNOVATIVE ELEMENTS

In summary, the innovative elements of the project were its revitalization of the agricultural technical curriculum, especially through teachers' improved capacity to use new pedagogy centered on student learning and equip students with the skills and confidence to become problem solvers. Another innovation was the repurposing of the ATS farms for practical work and high-value agriculture.

BENEFITS AND IMPACT

The project's initial phase was successful in introducing active learning and raising the quality of the curriculum. The Ministry of Education supported an expansion and

Box 2.13 Seven Steps to Improve Teaching Methods and Introduce Active Learning in Egypt's Agricultural Technical Schools

Step 1: Training the ATS teacher in active teaching-learning methods. Forty-five Egyptian university faculty members from different subject matter areas were trained by two highly experienced teacher-educators from partner universities in the Midwest Universities Consortium for International Activities (MUCIA). The teacher-educators conducted a 28-hour practical workshop on active learning strategies for the faculty members, who would serve as future trainers. During the workshop, 15 active learning strategies were taught and practiced. The most effective faculty members emerging from the workshop were selected to conduct similar workshops for teachers from the agricultural technical schools (ATSs). The MUCIA specialists handed over full implementation of the process to the Egyptian trainers over a series of three workshops, and these trainers were given the task of conducting 20 two-day active learning techniques workshops for over 1,000 ATS teachers.

Step 2: Developing instructional materials for ATS teachers. A four-person MUCIA team worked in Egypt for two weeks to initiate this second step. It became clear that ATS teachers did not have access to audiovisual equipment, so the team emphasized developing transparencies that could be produced cheaply and easily and distributed to ATS teachers. Action plans were developed for the procurement of audiovisual materials suitable for the ATSs. Some 4,000 new transparencies were produced in Arabic and distributed to ATSs. In addition, 1,100 overhead projectors and screens have been purchased and installed in each ATS classroom.

Step 3: Developing lesson plans for each ATS course. Lesson plans were prepared, following the basic content of each course derived from the textbook used in the ATSs. A workshop was planned to help teachers use the lesson plans (Step 6).

Source: Author.

Step 4: Headmaster study tour to the Netherlands. A one-week study tour for headmasters was implemented in the Netherlands. The objective was to introduce the headmasters to the Dutch vocational education system and to investigate innovative ideas that could be used in Egypt's ATS system.

Step 5: Refocusing ATS school farms and using them for practical skill training. MUCIA sent a university farm manager to develop a work plan that would change the focus of the ATS school farms toward the production of high-income, labor-intensive export crops and give more emphasis to hands-on practical training for students. The project provided a grant to each school to purchase inputs, including seed, equipment, facilities, and tools. The goal was to have these innovations become operational by the beginning of the 2007/08 school year.

Step 6: Training ATS teachers in the use of lesson plans and instructional materials. A series of two-day workshops enabled teachers to effectively use the lesson plans developed in Step 3. The methodology for running the workshops was the same as used in Step 1 (training teachers in active teaching-learning methods).

Step 7: Assessing progress and refining the lesson plans and instructional materials. Project management would meet with ATS teachers and their students to assess the value and impact of the different innovations in improving the teaching-learning process at the 25 ATSs. Adjustments would be made to selected lesson plans and transparencies. The Ministry of Education expressed interest in having lesson plans and transparency sets for each of the 33 courses reproduced and made available to teachers in all 104 ATSs.

continuation of the project to cover 54 ATSs for 2008–12. To date, results from the expanded project include:

- Administrators and headmasters of the 54 ATSs have been introduced to new approaches to managing technical schools, providing a more effective teaching-learning environment, and identifying skills needed by the private firms through observation study tours in the Netherlands and Greece and through in-country training.
- Over 3,700 ATS teachers have been trained to use active teaching-learning methods, and they have been using these new methods in their classrooms.
- Classrooms and laboratories at each of the 54 ATSs have been equipped with 386 computers, 910 overhead projectors, and 54 LCD projectors and screens. Overhead transparencies for 51 technical agricultural courses (approximately 120 transparencies per course) were developed and are in use.

Box 2.14 Views on the Impact of the Supervised Student Internship Program in Egypt

“These are absolutely the best employees who have ever worked on my farm and in my packing station,” said Mr. Samy Ibrahim, Managing Director and owner of CELF, one of Egypt’s leading exporters of horticultural products to Europe. He was referring to the 122 agricultural technical school interns his company had hired since 2008. Mr. Hussein Mohamed, a teacher who participated in the internship training as supervisor, noted that “The greatest impact of internship on students is that they gain more than just skills. They learn about their strengths, interests, problem-solving skills, and abilities to deal with clients. They also gain greater understanding of science-based agriculture and develop a positive attitude about working in agriculture.”

Source: Adapted from USAID Egypt, n.d.

- More school farms at selected ATs are being transformed to provide more practical and hands-on training for students, especially related to export crops.
- Supervised Student Internship Programs paid by commercial farms and Ownership Programs helped more than 8,000 students to improve their technical and managerial skills in horticulture and livestock farms and

agribusiness firms. The internship program, which is part of the USAID-funded Value Chain Training initiative, has been highly successful in increasing capacity and confidence in both students and the teachers who supervise their practical experience (box 2.14). Employers have been impressed at the capability and dedication of the student trainees and have hired many of them in full-time or part-time positions.

- Career development activities provided communication, leadership, and personal growth skills to 7,500 students to prepare them for successful careers in agriculture.
- Student competence and confidence improved as a result of the new pedagogical approach.
- Demand for the newly graduated students from the project has increased.

LESSON LEARNED

This relatively low-cost approach to transforming the teaching-learning process is directly applicable to the other ATs in Egypt and to vocational agricultural programs throughout the developing world.

The initial phase that focused on creating teacher and administrator capacity to manage the new approach to learning and on creating links to potential employers of ATs graduates enabled all parties to evaluate progress and impact. The result was very favorable and led to an extension of the project for four more years and involving 54 additional schools.