



INFORMATION AND COMMUNICATION TECHNOLOGIES

Teaching and Learning Materials Enhancement

The Challenge

In November 2018, the Republic of Uzbekistan Ministry of Preschool and School Education (MoPSE) announced its Information Technology Nation initiative, which is aimed at producing graduates with the ability to work in cyber security, software development and testing, network administration, graphic design, animation, and game design. To achieve these outcomes, the public education system began addressing a series of critical constraints, including access to information and communication technology (ICT) hardware and broadband access at the school level, time allocated to ICT classes, and outdated standards and curriculum for ICT education, which should better reflect assessments of ICT skills and current labor market and university demands.

The Journey

The U.S. Agency for International Development's Uzbekistan Education for Excellence Program supported the Ministry's priorities by reviewing and piloting ICT student learning standards and curriculum materials and providing teacher professional development to enhance ICT instruction. This brief provides an overview of the development of the teaching and learning materials, specifically teacher guides and student textbooks for grades 5–11.

The Program started the development of teaching and learning materials once the revision of the ICT student standards for grades 5-11 had been completed and a subject scope and sequence outlining the content for each grade had been developed. Following MoPSE's request to use an international series of ICT student textbooks, the Program procured and customized such a series, and then developed the teacher guides. Once the ICT teaching and learning materials had been drafted, the Program conducted a pilot to garner teacher and student feedback on the new books. Lessons learned from the pilot led to enhancements of the textbooks and teacher guides as well as newly created lesson plans to ensure successful use of the curriculum.

Selection of the ICT Student Textbook and its Customization

The selection of the international ICT student textbook series followed a rigorous process. A team of international and local ICT subject matter experts reviewed and evaluated the books, using a rubric, on the following criteria:

- Alignment with the vision and mission of the Ministry;
- Coverage of ICT standards and objectives routinely used by countries leading in ICT education;
- Content and tasks progression within grade and between grades;
- Assessment methods appropriateness to age and development stage of students;
- Gender and social inclusion sensitivity;
- Sensitive to the context for ICT in Uzbekistan; and
- Practical application of skills to help enhance student learning to reach proficiency levels in different skills.

The Program ICT experts then discussed pros and cons of the books based on the rubric and selected an ICT book series from Cambridge University Press and Assessment for further consideration. The series had ICT books for grades 1-11 yet only content for Grades 5-11 was required for Uzbekistan. The Program discussed this with the publisher and got permission to adapt the books accordingly and to develop a custom ICT teacher guide to help align the series accordingly. Before doing so, a group of subject matter experts from MoPSE conducted another review and, following their endorsement, MoPSE leadership approved the recommended series.

The next step for the Program ICT experts, therefore, was to customize the ICT textbook series for Uzbekistan. Textbooks created for one market are not always suitable to another without going through a process of customization that brings the books into alignment with the content and cultural expectations of the new market. During the appraisal, experts had identified a discrepancy between the number of instructional hours in the Uzbekistan academic year for teaching ICT and the number of units and lessons in these textbooks. In addition, the ICT experts identified three priorities for Uzbekistan that did not exist in the international series: programming, digital citizenship, and digital culture. Experts also identified topics that needed to be at different times than what appeared in student textbooks. For example, Uzbek students needed an introduction to the physical computer in grade 5, whereas this topic appeared in another grade in the international series. This was addressed during customization.

The textbooks went through multiple iterations of translation, contextualization of pictures and text, and addition of adopted English terms in the glossary. Cultural customization took into consideration important cultural norms and expectations in Uzbekistan. Photographs and texts were analyzed for conformity to ministry specifications, and several images, such as those in Figure 2, were replaced to align with specified cultural expectations.

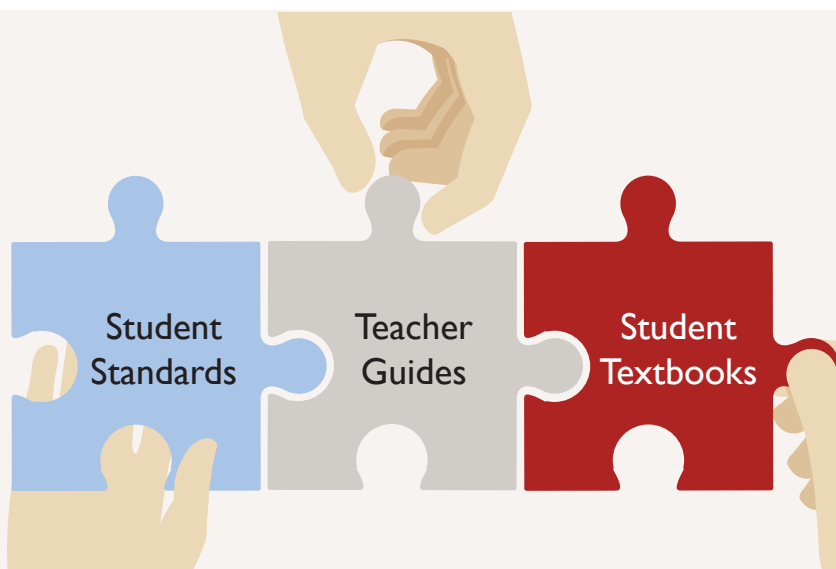
FIG 1. EXAMPLE OF CULTURAL CUSTOMIZATION



Development of Teacher's Guides

Concurrently to customizing the student textbooks, the Program developed Teacher Guides to support ICT content delivery according to the Uzbekistan ICT standards and instructional time availability. The teacher's guide provides a bridge between the student learning standards and the student textbooks (see Figure 1).

The ICT experts carefully considered each aspect of the ICT teacher's guide. The layout and design followed international best-practice and helps teachers navigate with ease. Each teacher guide includes new or updated sections based on feedback from piloting of the original teacher guide.



Considerations	Solution
Support teacher to set norms for student-centered classroom and inquiry-based learning.	Describe and provide a list of inquiry-based and project-based instructional strategies, in the introduction section of the Teacher's Guide
Support teachers on how to use the teacher guide and external resources needed for lessons.	Outlines the sections of the teacher guide, lesson planning guidelines, time allocations, teaching strategies. Explains ICT assessments, rubrics, scope and sequence and a digital platform QR code for teachers to find all resources. Adds translations resources help teachers translate English resources and use closed captioning on English videos. The scope and sequence helps teachers to easily reference the schedule of when topics are to be taught for lesson planning purposes.
Support teachers to cross-reference teacher guides, student textbooks and lesson planning.	Introduces topics to teachers in a simple paragraph describing the topic and information on connections between topics and within topics taught across grades.
Support teachers to easily navigate, and prioritize the most important content.	Each lesson guide contains all needed information for a teacher to create a lesson plan, including topics covered, standards, objectives, time allocations, vocabulary, materials needed, activity suggestions, resources, and textbook facsimiles where appropriate. Lesson guides are separated by topics. Some topics fit within one lesson (e.g., Lesson Guide 1), while other topics span several days either as a single topic or complementary topics (e.g., Lesson Guide 11–17).
Support teachers to develop project-based model lessons that span over several days to demonstrate how to divide a topic over multiple days.	Model lessons, or examples of scripted lessons, are provided for teachers after the lesson guides. There are three to five model lessons provided per grade.
Support teachers to link lesson planning, student engagement and assessment.	Additional resources include standards, glossary, activity sheets, and rubrics. The glossaries are a compilation of terms from the student textbooks and teacher guides.

What is the Digital Platform?

The Program also supported the development of an educational digital platform hosted by the Republican Education Center at MoPSE to store teaching and learning materials and supplementary resources for ICT and other subjects for easy access by teachers. Within the ICT section of the digital platform, there are two major levels of content division: grade level and lesson level. At the grade level, the overarching sections of the teacher guides, glossaries, standards, and corresponding textbooks are included. At the lesson level, specific lesson guide and relevant resources are provided.

IMPACT AND FUTURE RECOMMENDATIONS

More support is needed to improve ICT education. The constantly evolving nature of the technology has implications for the education sector that aims of creating graduates with relevant and transferable skills. The development of the teaching and learning materials, including the teacher guides and customized Cambridge series of ICT textbooks for grades 5–11, and the provision of the digital platform significantly support the MoPSE's goal of improving ICT teaching and learning in Uzbekistan.

PROGRAM SUMMARY

USAID partners with the Government of Uzbekistan to enhance student learning in Information and Communication Technologies, English language, reading and mathematics. The USAID Uzbekistan Education for Excellence Program supported the Ministry of Preschool and School Education from (2019-2023) to revise student learning standards, provide new teaching and learning materials and comprehensive teacher training aligned to these standards, and conduct rigorous monitoring and research. Working closely with the Ministry, our consortium – led by RTI International included Florida State University and Mississippi State University – brought together the expertise of international and local experts to drive effective implementation. Mississippi State University's International Institute and Center for Cyber Education supported the ICT innovations. Together, we aimed to foster student engagement and improve learning outcomes.



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