ICT FOR HIGHER EDUCATION? - CASE OF TAJIKISTAN -
OBJECTIVE OF THE STUDY AND PILOT ACTIVITIES

Assess the potential of using Information and Communication Technologies (ICT) to improve access, quality, and relevance of higher education in Tajikistan.
WHAT DID THE ICT CHAPTER OF THE HIGHER EDUCATION SECTOR STUDY COVER?

1. ICT infrastructure assessment
   - Literature Review (based on e-readiness assessment 2012)
   - Survey to 20 HEIs

2. Feasibility study of using ICT for higher education
   - Policy document review
   - Literature review (based on e-readiness assessment 2012)
   - Survey to 20 HEIs

3. Pilot activities
   - 4 pilots with 5 partners (HEIs and NGOs) from December 2013-April 2014

4. International practice review
   - Literature Review
   - Findings from MOOCs for Development Conference in April 2014
   - Interview and knowledge exchange with international experts and rectors from open universities providing distance education

Link to the study:
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Link to the study:
WHAT DID WE DO?

Based on the challenges identified by the National Education Development Strategy, developed by the Ministry of Education and Science in Tajikistan and Open Society Institute Tajikistan, 2010

Developed and implemented 4 pilot models to assess the potential of ICT to address these challenges
WHAT WERE THE CHALLENGES?

1. Inadequate teaching materials, equipment and facilities and access to information
2. Poor integration between research and higher education
3. Limited professional development opportunities for faculty
4. Weak linkage between higher education and the labor market
5. Poor management and planning capacities
6. Lack of effective quality assurance and performance evaluation mechanisms
7. Lack of distance learning system
8. Lack of life-long learning opportunities
9. Less learning hours for Tajik students
10. Low capacity and aging faculty due to low wages compared to other job opportunities
HOW CAN ICT POTENTIALLY SOLVE THESE CHALLENGES?

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
<th>Solution Models</th>
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<tbody>
<tr>
<td>1. Inadequate teaching materials, equipment and facilities and access to information</td>
<td>• Provide more access of materials via online, including virtual lab experiments</td>
<td>1. Teacher Training and Teaching Resources</td>
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<td>2. Poor integration between research and higher education</td>
<td>• Use National Research and Education Network to connect research and education communities</td>
<td>2. Lifelong Learning</td>
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<td>3. Limited professional development opportunities for faculty</td>
<td>• Provide teacher education contents via online</td>
<td>3. Supplementary courses</td>
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<td>4. Weak linkage between higher education and the labor market</td>
<td>• Provide relevant technical and business training via online</td>
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<td>5. Poor management and planning capacities</td>
<td>• Provide online management tools</td>
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<tr>
<td>6. Lack of effective quality assurance and performance evaluation mechanisms</td>
<td>• Online performance evaluation system can be used</td>
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<td>7. Lack of distance learning system</td>
<td>• Provide various distance learning options</td>
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<tr>
<td>8. Lack of life-long learning opportunities</td>
<td>• Provide access to skill upgradation courses</td>
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What were the Pilot Models?

1. Teacher training on course creation using an open-source learning management system called Moodle and Atutor.

2. The use of existing courses from different online platforms such as Coursera, Code Academy, Lingualeo, and Intuit.ru for teacher training, life-long learning and supplementary learning materials.

3. A survey aimed at the private sector on joint course creation with universities.

4. Workshops to raise awareness and conduct knowledge exchanges with open universities from Malaysia, Indonesia, South Africa, and the United States on distance education and the use of learning management systems.
HOW DID WE IMPLEMENT THE PILOT?

1. Pilot was conducted on a voluntary basis with 3 public universities and 2 NGOs. Each institution took charge of activities and reported the progress.
   1. Tajik State University of Commerce (TSUC)
   2. Tajik Technical University (TTU)
   3. Technological University of Tajikistan (TUT)
   4. Centre ICT
   5. Tajik Academic Research and Networking Association (TARENA)

2. Knowledge exchange partners also voluntarily shared their experiences on distance education, e-learning, LMS, National Research and Education Network through Skype, video conferences, and face-to-face meetings
   1. Wawasan Open University, Malaysia
   2. Terbuka University, Indonesia
   3. Western Governors University, United States
   4. University of South Africa, South Africa
   5. Khujand Polytechnic Institute of the Tajik Technical University, Tajikistan
   6. Institute of Entrepreneurship and Service, Tajikistan
MODEL 1: TEACHER TRAINING ON COURSE CREATION USING OPEN-SOURCE PLATFORMS

1) MOODLE

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. Anyone can download the software onto their own web server or ask Moodle Partners to get support.

Moodle is built by the Moodle project which is led and coordinated by Moodle HQ, an Australian company of 30 developers which is financially supported by a network of over 60 Moodle Partner service companies worldwide.
MODEL 1: TEACHER TRAINING ON COURSE CREATION USING OPEN-SOURCE PLATFORMS

1) MOODLE

ACTIVITY
Tajik State University of Commerce (TSUC) conducted a teacher training focused on using a Moodle Content Management System (CMS) platform for creating online courses, and methodological workshops on e-learning to teach how to develop education materials for this platform and teacher-student interactions.

TSUC’s e-learning platform based on Moodle
www.moodle.tsuc.tj
MODEL 1: TEACHER TRAINING ON COURSE CREATION USING OPEN-SOURCE PLATFORMS

1) MOODLE

RESULTS

- What worked:
  - Over 80 teachers were trained on basics of e-learning and content management.
  - More than 16 teachers finished a course on e-learning & Moodle basic training.
  - 6 teachers became tutors for other teachers.
  - Through this workshop, teachers contributed to creating over 12,000 tests available in this platform.

- Challenges:
  - Most of the courses are currently limited to how to use Moodle and how to create e-learning courses, and not necessarily on the subjects.
  - The ICT related faculty is the one who is taking the initiative in making e-learning courses.
MODEL 1: TEACHER TRAINING ON COURSE CREATION USING OPEN-SOURCE PLATFORMS

2) ATUTOR

**ATutor** is an Open Source Web-based Learning Content Management System (LCMS). Administrators can install or customize ATutor. Educators can quickly assemble, package, and redistribute Web-based instructional content, easily retrieve and import prepackaged content, and conduct their courses online. Students learn in an adaptive learning environment.
ACTIVITY
Technological University of Tajikistan (TUT) conducted a pilot through its Centre of Distance Education (CDE) and TUT Centre of Innovation and Communication Technologies. The CDE used ATutor since it was free, open-source and capacity building training and materials were available through a partner university - the University of Ternopyl National Technical University in Ukraine. Training lasted for 10 days and provided 10 sessions for 1.5 hours per day.

RESULTS
• What worked:
  • More than 30 teachers from different departments of TUT were trained and all of them completed the training course.
• Challenge:
  • Teachers are resistant to use new technologies in their professional activities.
MODEL 2: USE OF EXISTING COURSES

1) COURSERA AND CODE ACADEMY

**Coursera**: a for-profit educational technology company that offers free massive open online courses (MOOCs) through partnering with top universities and organizations worldwide.

**Code Academy**: a company that provides an online interactive platform teaching how to code with 8 different programming languages for free. Over 24 million users completed over 100 million exercises.
Lingualeo: a freemium online platform offering an English language learning service for Russian, Brazilian Portuguese, and Turkish speakers. As of September 2014, over 9.5 million people worldwide have used its online service to learn English.
MODEL 2: USE OF EXISTING COURSES

3) INTUIT.RU

Intuit.ru: Free distance learning courses offered through the National Open University in Russia. Most of the courses are IT related and companies such as Intel and Cisco also offer courses through this platform. The most popular platform among Tajik students and teachers as the instructions are provided in Russian and the certificate is issued.
MODEL 2: USE OF EXISTING COURSES

4) COURSERA, CODE ACADEMY, LINGUALEO, AND INTUIT.RU

ACTIVITY

• Tajik Technical University (TTU) mainly implemented this activity.
  <Use of existing courses for teachers>
  • 4 teachers took courses such as network security, web programming, electricity and magnetism, and English from three different online platforms (2 from Coursera, 1 from Code Academy, and 1 from Lingualeo). The teachers took these courses a few hours per week.
  <Use of existing courses for supplementary materials>
  • 3 students took Lingualeo courses but did not complete.
  <Use of existing courses for life-long learning>
  • TTU conducted awareness building activities to encourage anyone interested in life-long learning opportunities to take online courses. 5 students, 1 teacher and 1 vice dean from ICT department joined the Linux Essentials, HTML, Windows Server, and Networking Security courses from Intuit.ru and spent a few hours a week.

• Center ICT identified, assessed and selected existing distance learning online courses to be delivered through their center. The Center provided training on how to sign up, select and learn subjects through online course platforms (Intuit and Coursera) for participating students and teachers.
MODEL 2: USE OF EXISTING COURSES

4) COURSERA, CODE ACADEMY, LINGUALEO, AND INTUIT.RU

RESULTS

• What worked:
  • Infrastructure - the required bandwidth was 1 Mpbs and the teachers were able to take these courses with current Internet access (although some participants commented that the infrastructure was still a challenge)
  • High quality learning experience
    • Coursera seemed the most appropriate for learning due to its good quality materials, available from leading universities.
    • Students who took Lingualeo courses liked the materials and game + video based pedagogy
    • Code Academy’s interactive learning environment was appreciated
    • Up-to date available courses through Intuit.
  • Course participants got certified
    • 12 students from Centre ICT signed up for Intuit and 4 completed GNU/Linux Essentials and Administration and received a certificate of completion from Intuit.
    • 3 teachers also finished IT courses through Intuit
  • Capacity building
    • Center ICT proved its capacity as well as a reputation for positioning itself as a learning hub. Moving forward, Center ICT needs to develop and launch online English courses (English Essentials and English Advanced) for trainees, Provide technical (course and manual creation) and administrative (Internet access, M&E) support
4) COURSERA, CODE ACADEMY, LINGUALEO, AND INTUIT.RU

RESULTS

• Challenges
  • MOOCs cannot be officially accredited in Tajikistan. Therefore, only Open Education Resources (OER) with creative common license can be explored as potential courses, yet these have not been explored enough.
  • There is currently no mechanism to formally recognize course certificates from MOOCs platforms as a formal training qualification. Teachers would be incentivized if those certificates were recognized as professional qualifications by the government, universities, and industry.
  • Language was a limitation for access to English-based high quality learning materials
  • Advertisement through Intuit platform was disturbing.
  • Learning outcomes were not measured
  • Business model needs to be developed to operate in a sustainable manner
  • Participants took mostly IT-related courses
MODEL 3: SURVEY FROM THE PRIVATE SECTOR

ACTIVITY

Tajik State University of Commerce (TSUC), in collaboration with the World Bank, conducted a survey to banking, IT, education, and consulting companies.

RESULTS

- 3 IT companies, 1 banking, 1 education consulting, and 1 consulting company responded to the survey.
- 4 companies have their own online/offline courses and 2 do not.
- All of them were interested in collaborating with the universities to develop online courses and willing to hire students who complete the jointly developed courses. The majority of the companies were interested in making a course on IT literacy.
- About 70% of them were interested in investing about 1000 TJS (USD 200) in creating online courses with the local universities, because they suffer from lack of human capital.
- More opportunities for this type of public-private partnership can and must be created since there are no legal obstacles to doing so. There will be a need to establish a legislative framework, however, to formally recognize newly developed curricula and courses as part of university education so that students can receive adequate credits.
MODEL 4: AWARENESS BUILDING AND KNOWLEDGE EXCHANGE WORKSHOPS AND MEETINGS

ACTIVITIES

**Tajik Technical University (TTU)** conducted awareness building activities to encourage anyone interested in *life-long learning* opportunities to take online courses.

**TARENA** organized 3 workshops on **LMS and e-learning and NREN**.
- Shared local experts’ experience using online learning platforms
- Hosted an international online meeting jointly with CAREN (Central Asian Association of NRENs), which unites 4 countries in the region: Kazakhstan (KazRENA), Kyrgyzstan (KRENA), Tajikistan (TARENA), and Turkmenistan (TuRENA)

**TSUC** arranged workshops and conferences with 2 universities’ administration and explained the importance, advantages, and cost of e-learning implementation

**Skype Meetings with International Experts**
- Use of e-learning and LMS – University of South Africa
- Policy and quality assurance mechanism – Wawasan Open University in Malaysia, Terbuka University in Indonesia
- Course material creation with the private sector – Western Governors University in the U.S.
MODEL 4: AWARENESS BUILDING AND KNOWLEDGE EXCHANGE WORKSHOPS AND MEETINGS

RESULTS

• The number of registered users (2,354) for the newly-launched Distance Education Centre of the Tajik State University of Commerce exceeded the expectation.

• The awareness raising activities provided information and opportunities for the participants to take online courses for their life-long learning opportunities

• As a result of the workshop and other e-learning relevant workshops, TUT also established an ICT club in the beginning of March. The club members include teachers, students and professionals and meet every two weeks to exchange information and concerns about e-learning

• CAREN is now seriously considering LMS and e-learning as a potential service provided to member universities
A survey was conducted to those who participated in pilot activities.

38 from 15 HEIs and legal and private entities, consisting of:

- 30 teachers (24 male, 6 female)
- 8 students (4 male, 4 female)

Among the teachers, the majority’s expertise fell under ICT and ICT-related fields.
FINDINGS FROM PILOT PARTICIPANTS
ADVANTAGES AND DISADVANTAGES OF E-LEARNING

1. Top 3 advantages
   (i) self-learning opportunity
   (ii) availability of professional development through life-long learning
   (iii) potential reduction of the urban-rural gap

2. Top 3 disadvantages
   (i) lack of skills and inability to use new technologies
   (ii) low motivation of trainees for self-learning
   (iii) low quality assurance of educational contents
FINDINGS FROM PILOT PARTICIPANTS

TEACHERS IDENTIFY TRAINING MATERIALS AND HUMAN CAPACITY DEVELOPMENT TO BE THE MOST IMPORTANT REQUIREMENTS FOR ONLINE COURSE CREATION

Requirements for e-learning Development According to Participating Teachers

- Financial resources: 13%
- Human capacity: 36%
- Success stories: 3%
- Training materials: 44%
- Well-designed curriculum: 3%
- Willingness: 3%

Sample size: 30
FINDINGS FROM PILOT PARTICIPANTS

ENGLISH IS A BARRIER FOR USING EXISTING ONLINE COURSES
CERTIFICATION PROVIDES MOTIVATION FOR TAKING ONLINE COURSES

Platforms used by students and teachers

- UN apcict: 18%
- code.org: 4%
- coursera: 11%
- diplomacy.org: 4%
- edx: 7%
- fosilavi.tj: 4%
- intuit.ru: 29%
- khan academy: 4%
- moodle: 7%
- moodle.t.guk.tj: 7%
- specialist.ru: 4%
- sql-ex.ru: 4%

Preferred language of instruction

- English: 39%
- Russian: 43%
- Tajik: 17%

Sample size: 38

Intuit issues a certificate through the University. This certificate is accepted by local organizations, at least commercial companies and even universities.
FINDINGS FROM PILOT PARTICIPANTS

LANGUAGES, ACCOUNTING, SOFTWARE DEVELOPMENT ARE TOP 3 COURSES THAT PARTICIPANTS WANT TO LEARN ONLINE

Subjects that Participants are Interested in Learning Online

- Accounting: 12%
- Critical thinking: 5%
- Economics: 10%
- Information culture: 5%
- IT/ICT: 10%
- Languages: 17%
- Management: 2%
- Other ICT streams: 2%
- Software development: 12%
- Telecommunication and computer...: 2%
LESSONS LEARNED FROM INTERNATIONAL EXPERIENCES AND MOOCS4D CONFERENCE

- Policy

It is essential to set up a quality assurance mechanism for distance education to assure its quality. Not all the courses should be in distance education format. A phase approach for building online educational resources is a key.

- Course Delivery

Distance education is often delivered in a blended mode (online, CD-ROM, via TV, and Face to Face) where the role of tutor is essential.

- Course creation

In-house development or outsourcing approaches are taken. Use of creative commons license is getting popularity for content creation. Using MOOCs courses from foreign universities are restricted. Localization of content leveraging existing OER is important.

- Role of Teacher

Teachers generally become facilitators of education rather than lecturers.
AFTER THE PILOT ACTIVITIES
WORKSHOP WAS CONDUCTED TO DEVELOP A ROADMAP

Participants discussed on Policy, Infrastructure/human capital/finance, and Contents.
OPPORTUNITIES

1. Regional Collaboration
   - TARENA has potential to provide more research and educational related services to the HEIs in collaboration with CAREN (regional NREN).

2. More Labor-market Relevant Course Creation – especially through public-private partnerships
   - There is a capacity and infrastructure to create online courses. But most of the courses are IT-related and more non-IT courses will be needed.
   - Private sector is willing to create courses with universities, invest in training development, and interested in hiring those who finish these courses.

3. Potentially Increase Education Participation from Female Students
   - For female students, distance education helps continue their education even after marrying and having kids.
THANK YOU!!

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