Mobiles for Teachers Development

Findings from UNESCO Field Projects in Mexico, Nigeria, Pakistan, and Senegal

With support from and in partnership with Nokia

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1. Mobile learning ecosystem for teachers: What to be done?
2. Main Findings from the Four Country Projects
3. Lessons Learned
Mobile learning ecosystem for teachers: What to be done

Mobile Learning Eco-System at Micro Level

- **Content Development and Learning Pathway Design**
  - Deliver content
  - Empower learning pathway

- **Training and Continuous Peer Coaching**
  - Training on devices

- **Mobile Learning Solution for Teachers**
  - Devices
  - Content
  - Apps
  - Networks (SMS, social media)
### Mobiles’ Potentials

- Nearly 100% mobile coverage (not about smart phones)
- **Mobility** enabling learning anywhere, anytime
- **Lower demand in electricity** supply: more durable
- Embedded **networking** through phone calls, SMS, and mobile networks
- *Access* to online apps and content
- Integrated **knowledge creation tools** (photo/video/audio)

### Teachers’ Challenges

- Poor pre-service training
- Shortage of *subject knowledge worsened by no* access to teaching content
- Weakness in teaching methodologies
- Sense of helplessness and sense of being isolated
- Shortage of devices to motivate students
- Pressure of *managing large classes*
Mobile learning ecosystem for teachers: Mexico

**Mexico**: Enhance the teaching practice of primary school Spanish language teachers teaching students who speak indigenous languages at home

**Target Audience**: 60 Bilingual teachers of Indian children in multi-grade elementary schools in rural areas of the State of Puebla, Mexico.

**Local institution & partners**: 
- Hosted by Ministry of the State of Puebla 
- Coordinated by National Pedagogical University (UPN) 
- Supported by Nokia Education Delivery platform.
Mobile Learning Solution:

- **Mobile Apps**: Nokia Education Delivery for the distribution of media material; a mobile Blog for feedback, comments and knowledge sharing.

- **Mobile Learning Content**: Adaptation of existing national curriculum for *Teaching Spanish in Basic Education*

**Mobile learning pathway**: Teachers view lesson plans → Take video of conversation between their own students → Sharing and applying self-generated videos.

**Training and support**: Workshops followed by tutors’ online facilitation and school visits
Mobile learning ecosystem for teachers: Mexico

**Mexico**: Enhance the teaching practice of primary school Spanish language teachers teaching students who speak indigenous languages at home.
Nigeria: Support the pedagogical practice and content knowledge of primary school English language teachers.

Target Audience: 52 primary school teachers from the Federal Capital Territory of Nigeria.

Local institution & partners:
- Hosted by National Teachers Institute
- Content developed by British Council
- Supported by Nokia Life+ platform to deliver messages to teachers’ phones
Mobile Learning ecosystem for teachers: Nigeria

Mobile Learning Solution:

- **Mobile Apps**: Nokia Life+

- **Mobile Learning Content**: teacher training course designed for teachers whose mother tongue is not English, supported by images and other graphics.

**Mobile learning pathway**: Weekly tips on English content and teaching methodologies (e.g., handling large classes and multi-grade classes); Motivational messages, location-based resources.

**Training and support**: Workshops and 3 follow-up meetings
Nigeria: Support the pedagogical practice and content knowledge of primary school English language teachers.
Pakistan: Develop professional practices of early childhood education (ECE) teachers working in rural areas.

**Target Audience:** 150 female rural ECE teachers.

**Local institution & partners:**
- Hosted and content developed by, MOE of Islamabad Capital Territory
- Coordinated by UNESCO Islamabad office
- Supported by **Mobilink** (operator) with free data enabled SIMS and free internet SMS for 6 months
- Supported by Nokia Education Delivery platform and Nokia Asha 311 phone sets
Mobile learning ecosystem for teachers: Pakistan

Mobile Learning Solution:

- **Mobile Apps**: Nokia Education Delivery and Nokia Asha 311

- **Mobile Learning Content**: 20 videos on ECE designed based on national curriculum and in Urdu language (8 only for teachers, and 12 can also be used for students).

**Mobile learning pathway**: Teachers’ learning of the videos was planned in advance. Multiple choice questions (MCQs) were sent through Mobilink’s software to teachers’ mobile phones on the concerned video.

**Training and support**: Workshops
Pakistan: Develop professional practices of early childhood care and education instructors working in rural areas.
Senegal: Improve the teaching of science and math in primary schools.

Target Audience: 100 school teachers who teach students aged 8-11 years in suburbs of Dakar (Diourbel and Pikine)

Local institution & partners:
- Coordinated by RESAFAD (Réseau Africain de Formation à Distance)
- Teacher Training by Centre Régionale de Formation de Personnels de l’Education de Dakar
- Supported by Nokia Mobile Mathematics (MoMath)
- Orange-Sonatel offered free connection to Nokia MoMath
Mobile Learning Solution:

**Mobile Apps**: Nokia MoMath platform and a Moodle-based administration platform

**Mobile Learning Content**: Teachers need to develop lessons based on national curriculum to be accessed through Nokia MoMath including following categories: Theory, Examples, Exercises and Tests.

**Mobile learning pathway**: The lessons designed by teachers are to be validated by local project team, and then to be uploaded to Nokia MoMath by the RESAFAD. 19 math lessons available

**Training and support**: Workshops
Senegal: Improve the teaching of science and math in primary schools.
Mobiles Empowering Teachers: What works and how to make it work

- Improvement in teachers’ content knowledge
- Change/improvement in pedagogy
- Learning new ICT and mobile skills
- Increased frequency of ICT usage
- Teachers’ and learners’ attitude towards using mobile for teaching out of schools and in schools
- Impacts on schools
Improvement in teachers’ content knowledge

Finding: In resources-scarce setting, mobiles enhances teachers access to relevant teaching content and develops their content knowledge

- Not tested empirically, but
- A substantial number of teachers reported that their knowledge of their subject had improved as a result of the intervention, particularly in the case of Nigeria and Mexico.

“It has improved my knowledge and allows me to better understand the exercises to give.”
-A participating teacher of Senegal.
Findings: Mobiles empower teachers to introduce more active learning.

- A statistically significant increase in the frequency of Teachers use of ICT for teaching

<table>
<thead>
<tr>
<th>The increase in frequency of ICT use for teaching</th>
<th>Pakistan</th>
<th>Senegal</th>
<th>Mexico</th>
<th>Nigeria</th>
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<tbody>
<tr>
<td>0.46</td>
<td>0.41</td>
<td>not significant</td>
<td>0.76</td>
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</tbody>
</table>

- Teachers of all countries reported pedagogic changes, particularly in the areas of the active participation of the learners in the classroom
Learning new ICT and mobile skills

Findings: As an easier-to-use device, mobiles remove the barrier to teachers’ ICT skill development.

- In all countries the teachers reported a statistically significant increase in their ICT and mobile skills

<table>
<thead>
<tr>
<th></th>
<th>Pakistan</th>
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<th>Mexico</th>
<th>Nigeria</th>
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</thead>
<tbody>
<tr>
<td>Reported improvement in</td>
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<td>mobile phone skills</td>
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<tr>
<td>reported improvement in</td>
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<tr>
<td>computer skills</td>
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- The new ICT skills learned is considered to be one of the greatest strength of the project in qualitative feedback from the teachers
Increased frequency of ICT usage

Findings: Mobiles, the likely only-available ICTs in the resources-poor settings, open the window to ICTs’ potentials and encourage teachers’ use of general ICTs

- In all countries the teachers reported a statistically significant increase in their frequency of use of ICT and more specifically with mobiles

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<tr>
<td>The increase in frequency of the general use of ICT</td>
<td>0.46</td>
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<td>0.33</td>
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<td>The increase in frequency of mobile use</td>
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<td>0.19</td>
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</table>
Teachers’ and learners’ attitude towards using mobile out of schools and in schools

Findings: Students are ready for the next generation of learning, while teachers and principals are more hesitant.

- Students were more positive to the use of ICTs and mobiles for teaching and learning out of school than teachers.

- Students attitude towards the use of mobiles for teaching and learning in classrooms also shifted more positively than teachers.
Impacts on schools:

- Although the project didn’t target school leadership and schools’ ICT in education strategy, it still generated positive impacts on schools.
- Teachers reported a positive impact on their schools.

Impacts on the students

- The project didn’t target students directly and its duration was too short for teachers to use the improved knowledge for their students.
1. Training

*Tune down the difficulty level of initial training and prolong the training duration for under-served teachers*

- Initial period of training was insufficient for teachers to apply the full functionality of their mobile phones.
- Initial training period should be extended and should include more time on basic ICT and mobile phone skills.
2. Ongoing Support and Sustained Networking

*Plan the on-going supports in advance and use mobiles to enable regular coaching.*

- Even though expert or mentoring teams established to provide continuous supports, teachers still requested more ongoing support.
- In Nigeria, weekly tips acting as on-going support and regular meetings between master teachers and teachers proved to be an effective supporting strategy.
- After being networked for one month, teachers felt less networked, which suggests teachers become more hungry for networking.
3. Quality and development strategy of mobile content

*Content development shouldn’t be under-invested, and development strategy should be assessed.*

- Positive feedback on quality of content in Mexico, Nigeria and Pakistan on time allocation, easiness to find information, coherence and volume of content.
- In Senegal, the strategy requesting teachers to develop content for MoMath proved to be challenging for teachers.
- Adaptation of existing content proved to be effective;
- Choosing local expert teams or external professional teams should weigh quality against sustainability.
4. Appropriateness of Mobile Phone Devices

*Large-screen smartphones are relevant to teachers.*

- Mobile phones screens matter for teachers, and projectors are needed for students.
- The flexibility in terms of which device is used for an intervention is important, and multiple device and service providers are encouraged.
- Mobile devices management mechanism by schools or local authorities (including procurement, insurance, maintenance, and reinvestment) should be attended.
5. Mobile Network

*Allow and support teachers to connect through multiple local mobile networks.*

- Poor network service is main source of complaint.
- Mobilize partnership with multiple mobile service providers to enable safer access to the network.
- Design applications and content accessible through different network provider.
A macro ecosystem to mainstream peripheral mobile learning for teachers

Institutional Support

- Institution Adoption
- Content and Coach Teams
- Sustain Content & Support
- Scaling up

Teachers Need - Driven

- Teacher Gap Vs. EFA Goals
- Content & Learning Pathway
- Training and Peer Coaching
- Better Skills & Practice

Micro Eco-System

Leverage Mobiles’ Potential

- Mobiles Potential and Local Situation
- Mobile Learning Solution for Teachers
- Better Learning

- Devices
- Content
- Apps
- Networks (SMS, social media)
Thank you...

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