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Организация
Объединенных Наций по
вопросам образования,
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منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

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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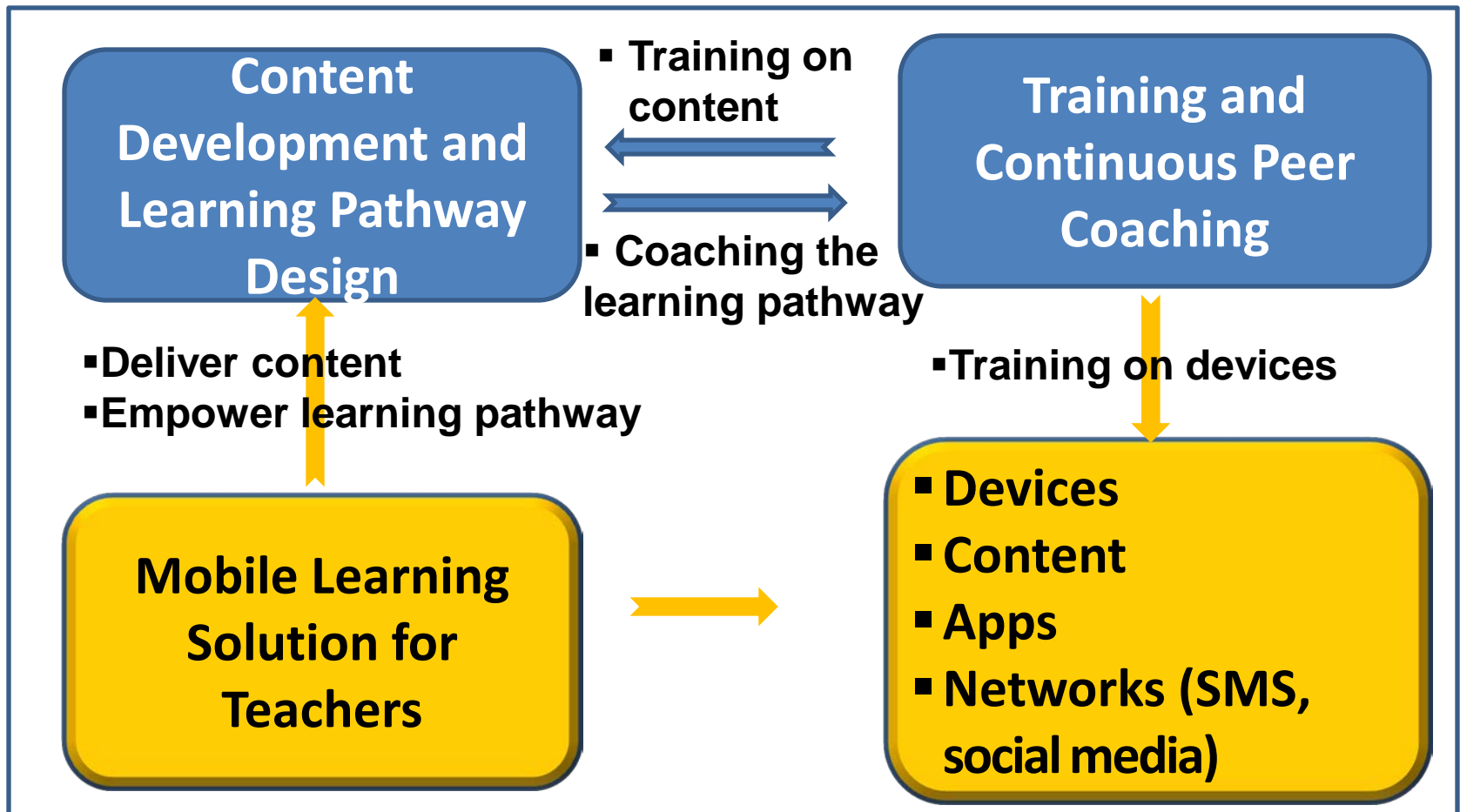
Outline

- 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





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Potentials of mobiles to address teachers' challenges in achieving EFA goals

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**



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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.



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Mobile learning ecosystem for teachers: Mexico

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.

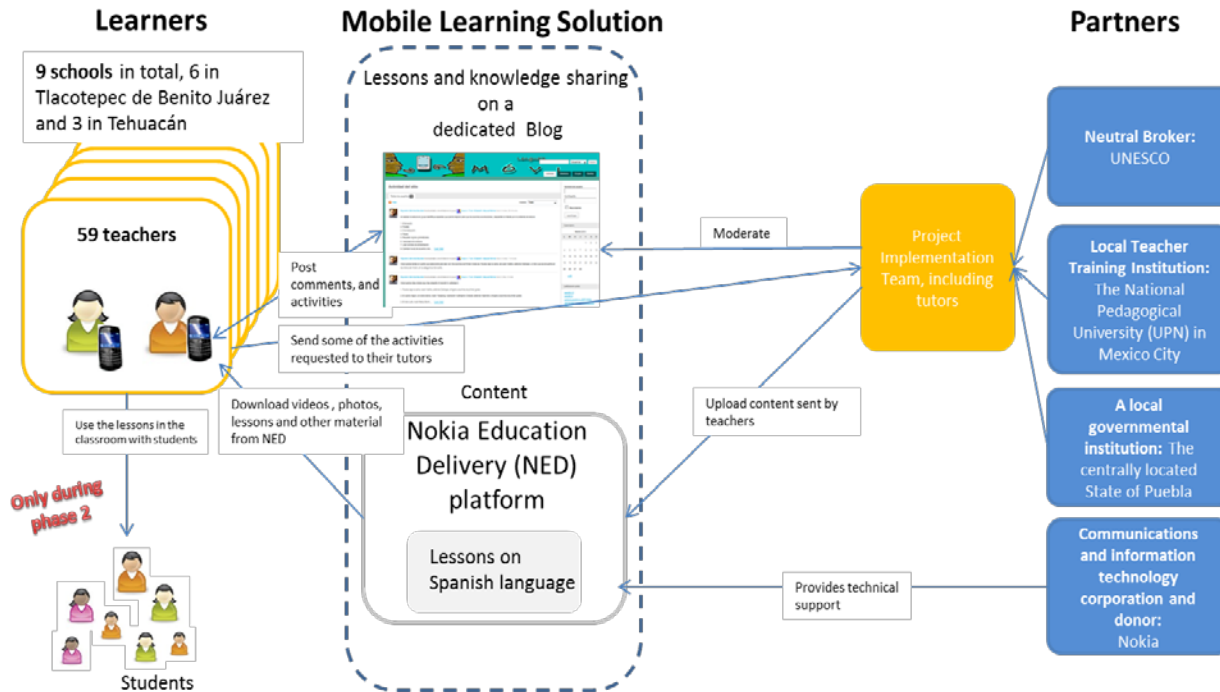
Training and support: Workshops followed by tutors' online facilitation and school visits



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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





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Mobile learning ecosystem for teachers: Nigeria

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



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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.

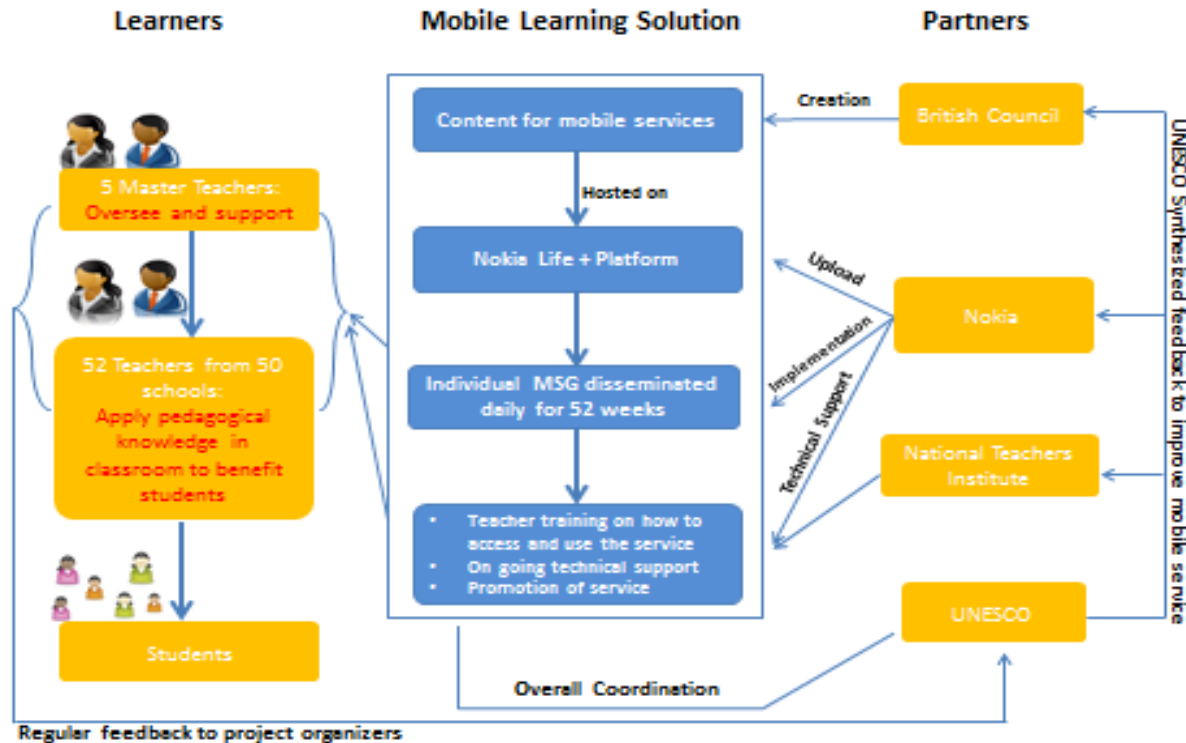
Training and support: Workshops and 3 follow-up meetings



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Mobile learning ecosystem for teachers: Nigeria

Nigeria: Support the pedagogical practice and content knowledge of primary school English language teachers.





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Mobile learning ecosystem for teachers: Pakistan

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



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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.

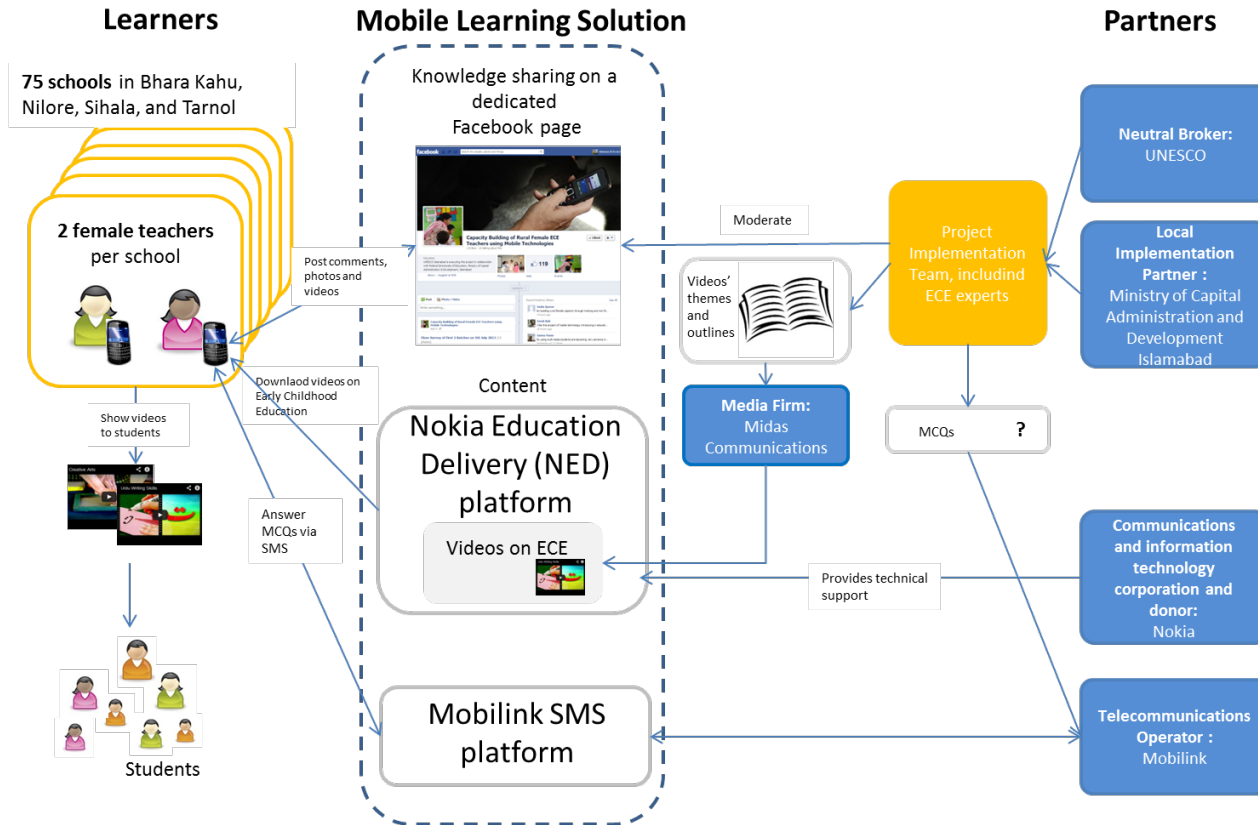
Training and support: Workshops



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Mobile learning ecosystem for teachers: Pakistan

Pakistan: Develop professional practices of early childhood care and education instructors working in rural areas.

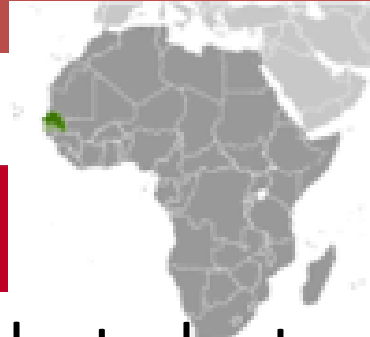




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Mobile learning ecosystem for teachers: Senegal

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'Éducation de Dakar
- Supported by Nokia Mobile Mathematics (MoMath)
- Orange-Sonatel offered free connection to Nokia MoMath



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Mobile learning ecosystem for teachers: Senegal

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

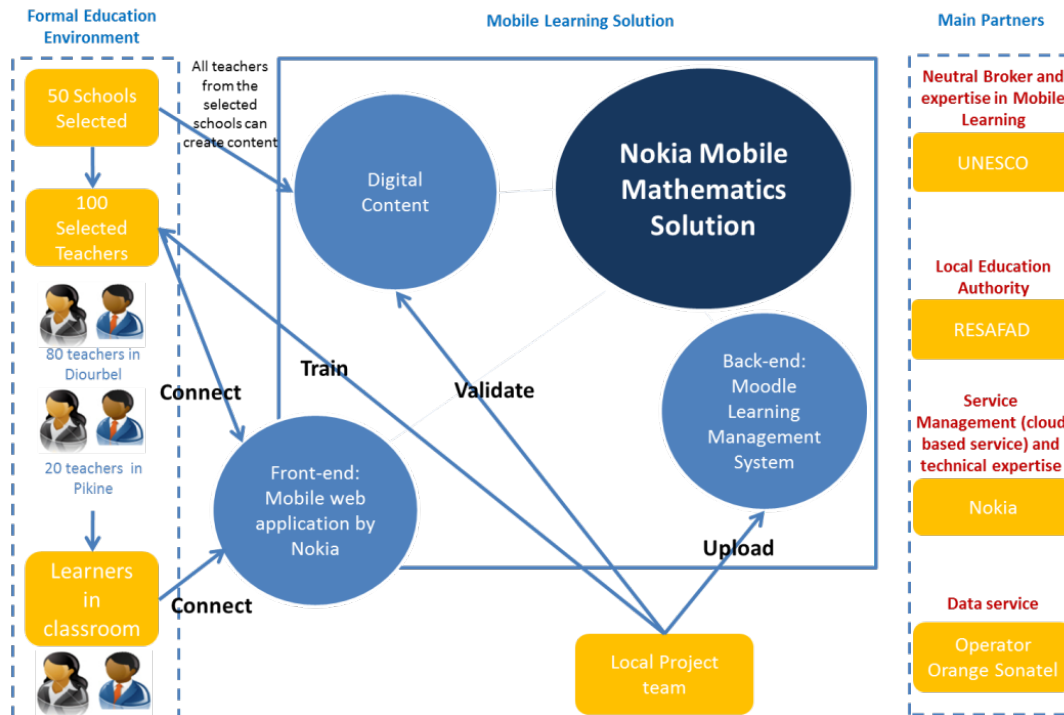
Training and support: Workshops



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Mobile learning ecosystem for teachers: Senegal

Senegal: Improve the teaching of science and math in primary schools.





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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



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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

	Pakistan	Senegal	Mexico	Nigeria
The increase in frequency of ICT use for teaching	0.46	0.41	not significant	0.76

- 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

	Pakistan	Senegal	Mexico	Nigeria
Reported improvement in mobile phone skills	1.33	0.61	0.31	0.83
reported improvement in computer skills	0.70	0.65	0.16	0.5

- 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

	Pakistan	Senegal	Mexico	Nigeria
The increase in frequency of the general use of ICT	0.46	0.41	0.33	0.43
The increase in frequency of mobile use	0.54	0.25	0.20	0.19



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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



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Impacts on schools

- **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-gong 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 hunger 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

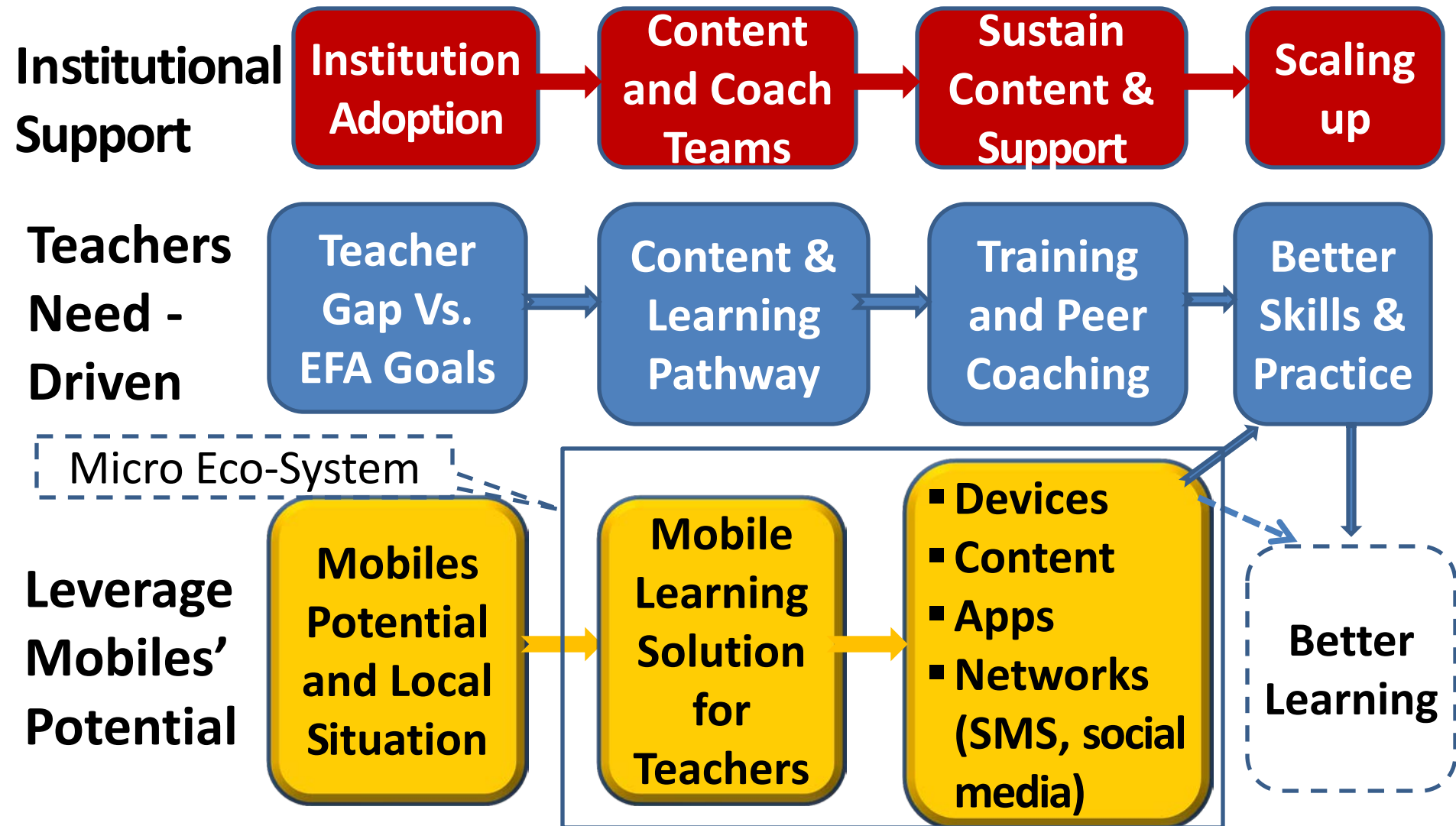
Allow and support teachers to connect through multiple local mobile networks.

- 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.



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A macro ecosystem to mainstream peripheral mobile learning for teachers





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