Open Source mLearning Platform

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Outline

• Background and motivation

• WEP - Wireless Education Platform: Concept and prototype

• MUPE as development platform

• Conclusions
**Background and motivation**

- Education is becoming one of the biggest investments for governments and individual families

- Remote learning has already started to take off. It is reported that 530,000 Chinese rural schools will have access to distance education in the near future.

- The nature of mobile learning as a new platform has not been systematically explored

- Nokia Research Center has released MUPE (Multi-User Publishing Environment) as open source application platform
Features of the Wireless Education Platform (WEP)

- Multilinguality
  - The prototype supports English, Swedish, and Finnish languages
  - A new language is implemented by adding the required expressions into a language file

- Automatic exercise generation and result checking
  - All mathematical exercises are generated by the server
  - The answers are checked and scored by the system

- Modularity
  - Currently two mathematics topics implemented
  - Adding a new topic is easy

- Modes:
  - Practice mode (alone)
  - Battle mode (2 players)
  - Relay game (2 teams)
  - Musical chairs game (tournament)
Three exercise types

- **Simplification**
  - Solve equation:
    - $4 + 7x = 1 + 6x$

- **Open answer**
  - $88 \text{ m} = ? \text{ dm}$

- **Memorizing exercise ("Brain sparring")**
  - Memorize:
    - $a=1 \quad b=3 \quad c=5$
  - How many even numbers were there?
Mode 1: Practice

- Anyone can practice the subject matters alone, without any pressure
Mode 2: Battle (2 players)

- Challenge your friend. The one who is quicker wins.
Mode 3: Relay game (2 teams)

- Two teams are created
- The assignment is transferred through each player in a team and the team that completes the tasks first is the winner
Mode 3: Relay game (2 teams)
Mode 3: Relay game (2 teams)

Wrong solution – new exercise for you!

Right solution – next member!

Results
Mode 4: Musical chairs game (tournament)

- The idea is like in the musical chair game:
  - User is given “a chair” in the game, and one by one the number of chairs is decreased so that in the end there’s only one user left – the winner
  - The slowest player to solve the assignment looses his or her chair
Mode 4: Musical chairs game (tournament)

Same exercise to all users playing
Mode 4: Musical chairs game (tournament)

Players return their answers
Mode 4: Musical chairs game (tournament)

Next round
Currency quiz based on treasure hunter

- Player needs to select the door with right answer to the given question. Two wrong currencies are randomly picked.

- If player answers all 20 questions right he/she will be rewarded by a treasure.

- If the treasure was not found he/she can try again the same questions. This time the color of the question indicates if the answer was right or wrong in the previous round.

9. What is the currency of Pakistan?
MUPE general

- Multi-User Publishing Environment is a platform for creating multi-user context-aware services, games and applications.
- MUPE applications are client-server applications, where the client device has a MIDP client that is constantly connected to the MUPE server - same client for all applications.
- The clients download a custom UI and functionality from the server, described with XML scripts.
- All parts of MUPE are available under the NOKOS license (Nokia Open Source license 1.0).
Conclusions

- WEP was easy to build up using MUPE
  - Easy extendable platform and easy to add new content (a new game mode was coded into the server in only 5 hours)
  - MUPE takes care of the network-connection, client code, and basic server functionality -> more time for creating innovative content
  - The new applications are available to users without a new client installation

- Mobile device is a suitable for (remote) learning
  - Learning can happen throughout the day
  - Easy communication with other students
  - Interactive content makes learning more fun
  - Device performance already good enough
Questions?

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Got interested?
http://www.mupe.net

WEP service: mupe.no-ip.org:9504 (subscribe in MUPE client)