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Edoo: Involving Teachers in the Development of E-learning Material

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Outline

- Background
- Edoo initiative
- Involved parties
- Experiment
- Results
Motivation

• Problems
  – Students
    • With student projects
  – Teachers
    • With suitable e-learning material

• ... and possible solutions

• How it all began
Students as Developers

- University of Ljubljana, Faculty of Computer and Information Science
- Elective course at Masters Level
  - E-learning
    - Focus on technological aspects of e-learning
- Student project
  - Developing educational games
Students as Developers

• Students
  – Good knowledge and experience in
    • Programming
    • Software development
    • Engineering
  – Poor didactic competences
  – Lacking pedagogical skills
  – No or unrealistic ideas
    • Real world problems
Teachers as Users

- Primary schools and High schools
- Different subjects
- Use of e-learning material in class
  - Finding appropriate material
    - No flexibility for adaptation
      - For individual learning scenarios
      - For a particular educational context
    - There is no "one-size-fits-all"
      - No material serves all scenarios
      - Changing and customizing existing material
Teachers as Users

- Teachers
  - Experienced school teachers
    - Rich pedagogical knowledge
  - Little or no experience in ICT
  - With innovative ideas
    - For improving lectures
    - Attractive e-learning materials
  - Lacking knowledge for realisation
Proposed solution

• Coupling students with experienced school teachers
• Encouraging enhanced collaboration
  – Between producers and users of learning materials
• Connect developers and users
  – In order to increase quality and value
• Voluntary activity
Edoo Initiative

• Main goal: creating didactic applications
  • Of good quality
  • That suit teachers’ needs in class
  • Modular and adaptable
• Increased involvement of teachers
  – In process of developing e-learning materials
• Engaging a group of interested teachers
  – To actively participate in development process
  – Providing ideas and relevant feedback
• On suitability and utility of developed educational software
Starting Edoo Initiative

• Started in spring 2013
  – At SIRikt 2013 Conference
  – Idea presented to broader teacher community
  – Invitations to join online community
Edoo Workshops

• Discussions
  – Current problems
    • Regarding existing e-learning materials
    • Teacher’s needs, wishes
  – Ideas for projects
    • Educational games
• Presenting proposed projects by students
• Preparing new ideas for student projects
• Refine all ideas
• Establishing cooperation with students’ project groups
Edoo je projekt, v okviru katerega poskušamo ustvariti in povezati skupnost učiteljev in programerjev. Namen te skupnosti je ustvarjanje kakovostnih didaktičnih računalniških programov (učnih gradiv), ki bi jih učitelji lahko uporabljali pri pouku.

Programerji v tej skupnosti so študenti Fakultete za računalništvo in informatiko (FRI), ki v okviru svojih študijskih obveznosti (navadno seminarjskih nalog) izdelujejo elektronska učna gradiva. Kot študentje računalništva imajo ustrezen znanje programiranja, manjka pa jim vpogled v realne potrebe v praksi in tudi didaktično znanje za izdelavo atraktivnega didaktičnega scenarija.

Učitelji v skupnosti so osnovnošolski in srednješolski (pa brez zadržkov tudi višješolski) učitelji, ki imajo dobre ideje, kako nadgraditi njihove učne ure z elektronskimi učnimi gradivi, a jim primanjkuje programerskega znanja za realizacijo te ideje.

Kontakt

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Edoo - učni objekti za e-izobraževanje

Navigacija

Dornov
  Predmeti

Predmeti

- Projekt Edoo
  - Ideje za učna gradiva
  - Učni objekti za e-izobraževanje (projekt Edoo)

- Matematika
  - Skakanje po listih (Matematika 1)
  - Matematični zaklad (Matematika 2)
  - Seštevanje s trikotniki (Matematika 3)
  - Matematične funkcije
  - Razvrščanje število v množico
  - Tekmovalna matematika

- Fizika
  - Porenostavitev električnih vezij
  - Spektroskopia (ova skupina)
Edoo Web Classroom

• Separate course for each project
  – Enrolled
    • Members of students’ development team
    • Interested teachers
  – Forum for meetings and discussion
    • Members exchange ideas and comments
    • Purifying ideas
    • Designing new didactic expedients
      – For different school subjects
• Keep track of joint projects
Edoo Web Classroom

- Developing educational application
  - Uploaded as course content
  - SCORM packages
    - After each iteration in development process
    - Enabling instant use and testing
      - Within Moodle environment
      - Feedback provided through forum discussions
        - Suggesting improvements
        - For next iteration
Guidelines (1)

• To increase usability and prolong lifespan
  – Of educational applications

• Implement in a modular way
  – Reuse individual parts
  – For changed learning scenarios

• Customization
  – Allow teachers to change and adapt the content
    • E.g., text or images
    • To their specific needs in class
Guidelines (2)

- Separate the application’s framework from its content
  - Allows for content modifications
  - Without affecting the application’s structure
- Maintain a source code repository
  - Modify code
  - Add new functionalities
  - Publicly available source code
Edoo Experiment

- Initiative started in spring 2013
- First collaborative projects
  - Implemented in winter semester of 2013/2014

- Some topics developed by students
  - No teacher’s involvement
- Several topics suggested by teachers
  - Workshop at the beginning
    - Fruitful project ideas
  - Limited interaction during semester
    - What went wrong?
Some examples...

Computer Graphics - Web Examples

Projection: orthogonal (parallel) and perspective
Some examples...
Some examples...
Preliminary results

- We still have to carry out formal evaluation of results
- Promising student progress reports
  - During semester
  - Increased enthusiasm, higher productivity
  - More focused pursuit of objectives
- Preliminary overview of student project results
  - Not as encouraging as expected
  - Possible problems
    - Using wrong tool for communication (?)
    - Voluntary participation (lack of time)
    - ???

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Future Work

• Final results still have to be analysed
• Evaluation of prepared e-learning material (games)
  – Focus on usability, modularity and modifiability

• Next iteration of projects
  – Starting in fall 2014
  – Teachers’ feedback will provide the basis
  – Improving
    • Development process
    • Communication
Future Work

• Source code repository
  – Publicly available
  – Involvement of external participants
    • Enthusiasts, teachers with ICT skills
    – Personalization

• Extend community of developers
  – Beside computer science students
  – Other enthusiast programmers
  – Contributing time and knowledge
Conclusion

• Initial experiences needed to effectively manage collaboration of teachers with student developers
• Identification of specifics of such teamwork
• Insight into creation process and collaboration of two communities
• Prepare examples of good practices
  – For future development
• A modified model of development methodology needed
  – Takes into account the specifics of student projects and involved volunteer on-site users
Questions?