A Gamification Platform for Inspiring Young Students to Take an Interest in Coding

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Motivation

ICT Workforce Growth in Europe


Motivation

New Demand by 2015 ...
... and how it will (not) be met

Source: Armonia 2013

CN: Computer Science, VT: Vocational Education and Training, WHT: Workforce Technology, Engineering, Mathematics, IEFTB: Instituto Espanhol de Tecnologia e Formacao Treatment
What are we doing about this?

• Hour of code - csedweek.org (United States)
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• Hour of code - csedweek.org (United States)
• Europe code week - codeweek.eu (Europe)

Our Approach

“A Gamification Platform for Inspiring Young Students to Take an Interest in Coding”

“the use of game design elements in non-game contexts” [Deterding et al. 2011]
Our implementation

• We organized Code Cyprus 2014
  
  – Goal: “Inspire high school students to take an interest in computer science.”

  – Sponsored by: Cyprus Fulbright Commission and UCLan Cyprus

  – The event took place on March 8\textsuperscript{th}, 2014 at UCLan Cyprus (http://2014.codecyprus.org)

The program

• “Why learn coding?” presentation

• Building a Frogger mobile game with AppInventor

• Treasure Hunt

• Motivation movie: “The Startup Kids”
Example: Variables in AppInventor

The Treasure Hunt

• Main elements
  – Mobile App with supporting Server
  – A sequence of linked questions
  – Real-time scoreboard / leaderboard with locations
  – Intriguing prizes
The Mobile App


The Server

Open source code available at: https://github.com/nearchos/uclan-tch
The questions

Treasure Hunt Challenge

What is the value of 2 after we press the "ButtonAncy"?
Find the clues in your own and write the number next to "ButtonAncy".

For more information about Treasure Hunt Challenge, please visit: http://codespace.net/

The real-time scoreboard/leaderboard
Evaluation

• Empirical evaluation

• Qualitative evaluation – Game Design Elements

Empirical evaluation

• Physical event with 65 students participating
• 65% rated the event as excellent
• 54% would recommend it to their peers
• 65% found the treasure hunt to be the best feature of the event
• Most requested feature: traceability of progress
Qualitative Evaluation - Game Design Elements

- Immersive environment
- Feedback
- Time pressure
- Scoreboard/Leaderboard

Conclusions & Q&A

- Motivation: Gap in coding jobs
- Approach: Gamified event for engaging students
- Implementation: Frogger tutorial & Treasure Hunt competition
- Evaluation: Qualitative & Empirical

- Questions?