Developing a Mobile Game Environment to Support Learners with Special Needs

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Problem

**Target Group**: Learners with special needs

- no school leaving certificate
- difficult to motivate
- negative learning experiences
- low frustration tolerance
- poor stamina
Problem

**Target Group:** Learners with special needs
- high penetration rate of technical devices
- low computer literacy

Basic computer skills are required
Assumptions

Mobile game scenarios
• Improve attendance
• Engage young people with learning
• Increase learner confidence and self-esteem
• Help to develop and to improve autonomy and engagement
• Support learners with low levels of literacy and/or numeracy

Douch, Attewell, Dawson (2010)
Approach

WeBuild
Multiplayer, mixed reality learning game

Game Features
• play money
• team play/competition/collaboration
• high score

Schmitz, Hoffmann, Klemke, Klamma, Specht (2012)
Technical Development

Based on the Android operating system

Features:
• Location-based and Google Maps Actions
• Multiple Choice Question (QTI format),
• Client/Server Communication
• User Management
Game Design

Different POIs

Building Sites  Bank  Warehouse
Educational Objectives

Basic knowledge of computers and software applications (E-Skills)

Improving employability skills and prospects of learners with special needs
The Learning Game

Different stations

- Bank
- Warehouse
- Building Site
Example

Different stations
- Bank
- Warehouse
- Building Site

Reality is augmented by electronic attachments
The Learning Game

Different stations
- Bank
- Warehouse
- Building Site

Milgram and colleagues (1994)
Game Testing
Results

Interface and game play usability
• Intuitive game
• functionalities are integrated well
• easy to understand game play

Technical functionality
• Runs capable
Results

Motivational aspects of the game design

- the target group accepted the game
- it was considered to be engaging
- They had fun walking around outside in teams while using the mobiles
- They were motivated to use it in an educational context
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