

# Improving Language Proficiency Through Games

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# Learning Through Games

- \* Educational technology is more effective:
  - \* As a supplement, not a replacement ( $d=.45$ )
  - \* When used for problem solving ( $d=.26$ )
  - \* If the student is in control of the learning ( $d=.60$ )
  - \* Through simulations and gaming ( $d=.33$ )
  - \* For out-of-class assignments ( $d=.29$ )
- \* More generally, anything that motivates a student will significantly improve learning outcomes ( $d=.48$ )
- \* Curriculum integration is critical



# Types of Learning Games

- \* Games: Activities with rule sets and win/loss states
- \* Simulations: Situated understandings of culturally meaningful phenomena
- \* Virtual Worlds: Complex systems with relationships among components

# Effects of Learning Games

- \* Games: Increase intrinsic motivation, leading to greater student outcomes
- \* Simulations: Best for representing processes and systems; individual student performance is greater than group game play
- \* Virtual Worlds: Repeated measurement of student learning will deteriorate outcome gains

# Interactive Fiction

- \* Game players influence a narrative by using text commands
- \* Conceptually enriched learning by providing context for instructional content
- \* Substantive, immersive, impactful, and reflexive participation in “play space” supports increased learning outcomes

Barab 2010; Dede 2009

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West of House 0/0
ZORK I: The Great Underground Empire
Infocom interactive fiction - a fantasy
story
Copyright (c) 1981, 1982, 1983, 1984,
1985, 1986 Infocom, Inc.
All rights reserved.
ZORK is a registered trademark of
Infocom, Inc.
Release 52 / Serial number 871125 /
Interpreter 6 Version J

West of House
You are standing in an open field west
of a white house, with a boarded front
door.
There is a small mailbox here.

>_
```

# Connection to Reading Research

- \* Incidental vocabulary learning
  - \* Students learn about 15% of unknown words
- \* Reading comprehension
  - \* Students learn more through extensive reading
- \* Motivation drives learning
  - \* Students learn more by stimulated interest
- \* Mobile devices and desktop computers
  - \* Students learn more from mobile devices

# Which leads us to...

Building on trends in mobile and gaming areas, FSI is creating a mobile app.

- \* iOS initially, Android later
- \* Interactive fiction model
- \* **1+ reading** proficiency level
- \* **One language** targeted initially
- \* **Replicable** model
- \* Publicly available



# Our first language: Indonesian



- \* Mid-sized student population
- \* Limited reading materials
- \* Lack of online mobile resources
- \* Latin-based alphabet reduces technical challenges



# Audience



- \* FSI students
- \* Foreign Service
- \* American public

# Game Features

- \* Text-based
- \* Branching decisions
- \* Save now, play later
- \* Game play 2-3 hours

# Unique Challenges

- \* Writing a non-linear story
  - \* New storyboard template
  - \* Research on how CYOA and gamebook authors develop
- \* Developing a system that can be templated
  - \* End goal is a model non-techies can follow
  - \* System needs to work across many languages
  - \* Must be 508 compliant

# Benefits and Limitations

- \* Benefits

- \* Anticipated student improvement
- \* Positive image of FSI and Department of State

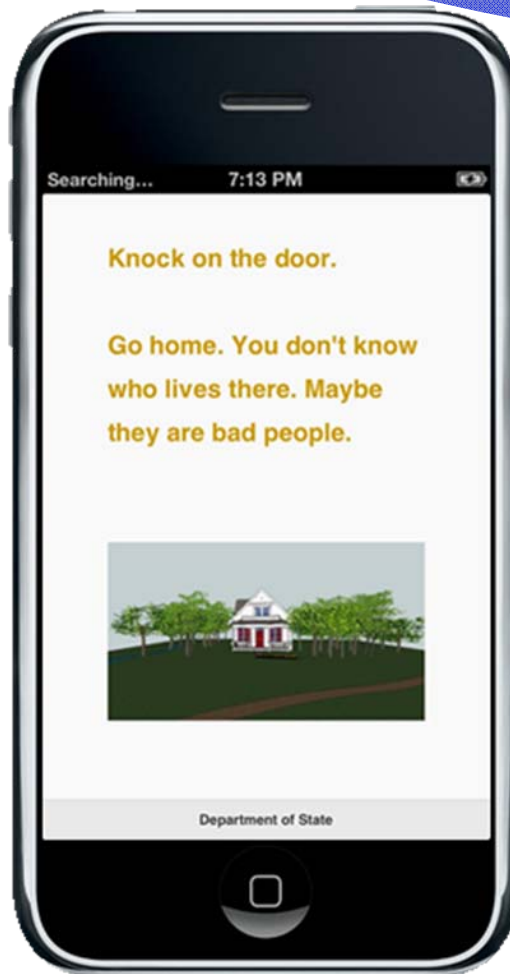
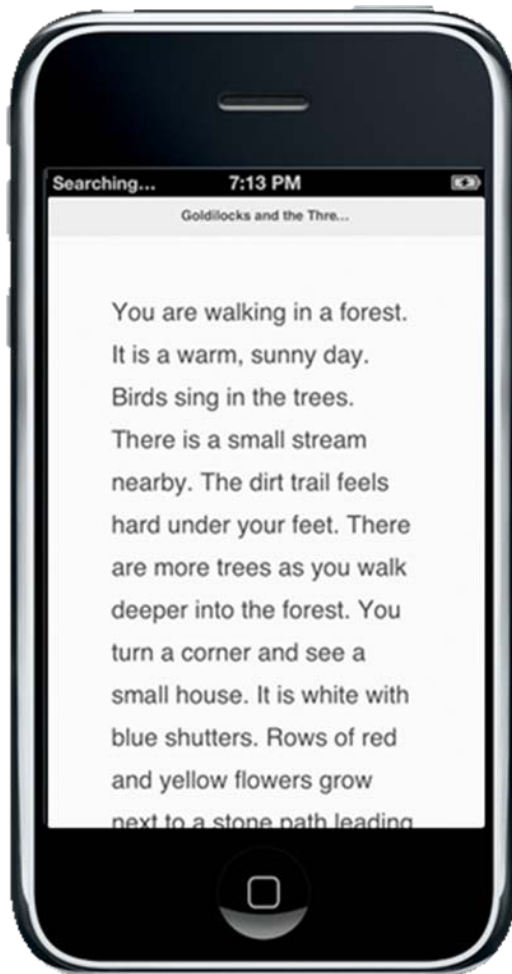
- \* Limitations

- \* Small development effort
- \* Small target audience

# Development Process

1. Develop programming proof of concept
2. User testing
3. Refine model
4. Create original story
5. Translate original story
6. Program final app
7. Launch in public app store
8. Repeat with Android

# Proof of Concept



# Current Status

- \* Refining user feedback on iOS version

Next steps:

- \* Documentation of process for replication
- \* Drafting final storyline

# Contact Information

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# References, 1 of 2

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