Improving Language Proficiency Through Games

Dr. Steven Berbeco
Tiffany Taylor Attaway
Foreign Service Institute
Learning Through Games

* Educational technology is more effective:
  * As a supplement, not a replacement (d=0.45)
  * When used for problem solving (d=0.26)
  * If the student is in control of the learning (d=0.60)
  * Through simulations and gaming (d=0.33)
  * For out-of-class assignments (d=0.29)
* More generally, anything that motivates a student will significantly improve learning outcomes (d=0.48)
* Curriculum integration is critical

Hattie, 2009; Squire 2005
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

Steinkuehler & Duncan 2009
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

Dickey, 2007; Merchant et al., 2014
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
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

Chen et al 2013; Guthrie et al 2006; Lin 2014; Swanborn & de Glopper 2002
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
You are walking in a forest. It is a warm, sunny day. Birds sing in the trees. There is a small stream nearby. The dirt trail feels hard under your feet. There are more trees as you walk deeper into the forest. You turn a corner and see a small house. It is white with blue shutters. Rows of red and yellow flowers grow next to a stone path leading to the house.

Knock on the door.

Go home. You don't know who lives there. Maybe they are bad people.
Current Status

* Refining user feedback on iOS version

Next steps:
* Documentation of process for replication
* Drafting final storyline
Contact Information

Dr. Steven Berbeco  
Curriculum Specialist, FSI  
BerbecoS@state.gov

Tiffany Taylor Attaway  
Online Learning Manager, FSI  
TaylorTL@state.gov
References, 1 of 2


