Motivation through Badges: An Experiment with Gamification of a Programming Class

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Overview

• What is gamification?
• Who’s using it?
• Tips for gamifying your class
• Programming II gamified
What is *gamification*?

- The application of game elements to non-game problems
  - Online
  - Pervasive
  - Community
  - Location-based
Game Elements

- Badges
- Points
- Leaderboard
- Progress Bar
- Virtual Goods
- Avatars
- Backpack

- Storyline
- Puzzles
- Quests
- Competition
- Quick feedback
- Recognition
Who’s Doing It

• Widely used by marketers to attract, engage and retain customers
  – Ebay’s star rating
  – UK Dept of Work & Pensions
  – Thoughtbox
  – Blue Shield health insurance
  – TV shows

• Companies gamify
  – Bunchball
  – Badgeville
Six steps to Gamification

1. Define your objectives
2. Delineate target behaviors
3. Describe your players
4. Devise activity cycles
5. Don’t forget the fun
6. Deploy the appropriate tools

¹ Kevin Werbach, *For the Win: How Game Thinking Can Revolutionize Your Business*
Why Not Gamify Our Classes?

• Engaging
• Compelling
• Retentive
• Creative
• Students are Millennials
University Example #1

• UPenn via Coursera: Gamification course
  – Two offerings
  – 147,000 students
  – 150 countries
  – Next course: January 27, 2014
  – www.coursera.org/course/course/gamification
University Example #2

• U. of Michigan
  – 200-student informatics class
  – Introduced game elements
  – More flexible assignments
  – Some LARP (Live Action Role Play)
University Example #3

- University of Cape Town
  - Games Development Course
  - Improve attendance, understanding, engagement
  - Developed a story line, a skin for the LMS
  - Solving mysteries with clues earned through tasks
• 2\textsuperscript{nd} semester Java programming class
• 10 students (8 men, 2 women)
• LMS is moodle V 2.5
• Flipped classroom + Gamification
• Objectives of gamifying
  – Improve student engagement
  – Motivate creativity and self-learning
  – Give sense of achievement
Moodle has Badges

My badges from STIU - eLearning Zone web site

To share these badges outside this web site you need to connect to a backpack.

Number of badges earned: 5

Search by name

Globetrotter (10 points)  Chapter 10  Bootcamp (10 points)  Chapter 7 2nd badge  Chapter 7 Arrays ArrayList

My badges from other web sites

To display external badges you need to connect to a backpack.
Conventional Programming I

• Two 2-hour sessions/week
  – Lecture + lab
  – Midterm & final exams
  – Homework exercises
  – Programming assignments

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Flipped Programming II

- Review slides and run example programs before class
- Short lectures to demonstrate constructs
- Most time individual and team programming
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Lessons Learned

• Need more incentive for “flipped” component
• Assign the “required chapter” program
• Use a leaderboard and/or progress bar
  – Use avatars for anonymity
• Have group achievements
  – e.g. ice cream for all when first five hit 50%
• Contribution badge for class attendance
Gamification: Good or Bad?

- **Good 😊**
  - Self-directed
  - Engaging
  - Many extrinsic reward systems
  - Increasing points rather than reducing points

- **Bad 😞**
  - Achievement addiction
  - Distraction from teaching
  - Inconsistent topic coverage
  - “losing” is demotivating
Feedback?

- Is gamification a fad?
- is gamification a viable alternative to traditional evaluation methods?
- Would gamification work in your classes?