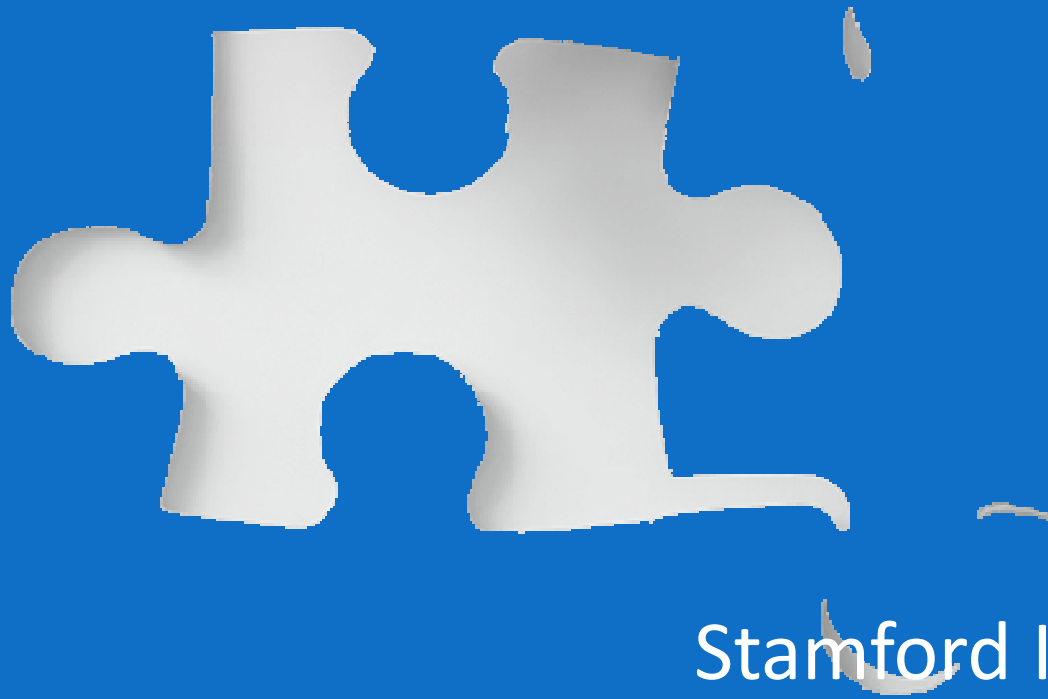


Motivation through Badges: An Experiment with Gamification of a Programming Class



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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



foursquare



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 Gamification¹

- Define your objectives
- Delineate target behaviors
- Describe your players
- Devise activity cycles
- Don't forget the fun
- 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/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

Programming II @ STIU

- 2nd 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

The screenshot shows a web browser window displaying the Moodle 'My badges' page. The browser's address bar shows the URL `elearning.stamford.edu/badges/mybadges.php`. The page header includes navigation links for 'ELEARNING HOME', 'STAMFORD WEBSITE', 'WEBMAIL', and 'REGISTRATION & GRADING'. The user is logged in as 'DonalDine Ernesta Samson'. The main content area is titled 'My badges' and shows a breadcrumb trail: 'Home > My profile > My badges'. Below this, there is a section for 'My badges from STIU - eLearning Zone web site'. A message states: 'To share these badges outside this web site you need to connect to a backpack.' The page indicates 'Number of badges earned: 5' and provides a 'Download all' button. A search bar is available with a 'Search' button and a 'Clear' button. Five badges are displayed in a row, each with a unique icon and name: 'Globetrotter (10 points)', 'Chapter 10', 'Bookworm (10 points)', 'Chapter 7 2nd badge', and 'Chapter 7 Arrays ArrayList'. A sidebar on the right contains 'NAVIGATION' and 'ADMINISTRATION' sections with various links and a search box.

Conventional Programming I

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

Homework (10)	25%
Programs (10)	30%
Class Contribution	10%
Midterm exam	10%
Final Exam	25%

Flipped Programming II

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

Game Feature: Badges

















	Name	Points
	Chapter	3
	Web Service	5
	Sockets	5
	Security Guard	30
	Rock Star	80
	Team Player	5
	Guru	10
	Gnome	10
	Globetrotter	10
	Bookworm	10
	Diplomat	20
	Mobile	20
	Contestant	5;40
	Entrepreneur	40

Progress to Date

Chapter	1st Badge	2nd Badge	#extra badges completed
7	9	9	1 video lesson
8	10	8	Teams
9	8	7	Map
10	9	6	Web service
11	8	6	encryption
12	8	6	I18N
13	7	7	
14	6	5	
15	5	4	
16	3 eLeader 2014	3	

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

RANK		SCORE	RANK		SCORE
1.	 StrongSide	522325	1.	 Must Be A Noob	265495
2.	 sideways	454845	2.	 m0cho	260925
3.	 Azerwrath	391900	3.	 HG Psycho	230165
4.	 garigraiko39	391130	4.	 PrxScope	223880
5.	 Pengwana	384400	5.	 I Be Poppin	222650
6.	 DAVO3000	379830	6.	 III DoT III	213575
7.	 TwitchGamesager	363910	7.	 Cartier x Killa	207865
8.	 DDT 343	361835	8.	 Stice2010	197670

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?