
Gamification: Tools and Techniques for Motivating Users

Gustavo F. Tondello

HCI Games Group,
Games Institute,
University of Waterloo
Waterloo, ON, Canada
gustavo@tondello.com

Lennart E. Nacke

HCI Games Group,
Department of Drama and Speech
Communication, Stratford Campus,
and Games Institute,
University of Waterloo
Waterloo, ON, Canada
lennart.nacke@acm.org

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Abstract

This course introduces participants to concepts of gamification and practices some gamification evaluation with a set of heuristics used to evaluate gameful applications and gameful design. We will introduce participants to some of the common gameful intervention strategies to add game design elements that can be used to motivate users and then train participants with our set of 28 gamification heuristics for rapid evaluation of gameful systems. The course is structured into three 80-minute units, which will give the participants enough time to learn how to gamify activities, apply new heuristics and improve their gameful designs. The course instructors, Gustavo Tondello and Lennart Nacke, have both developed the gameful design heuristics and taught a successful gamification course at CHI 2017 before.

Author Keywords

Gamification; Gameful Design; Motivation.

ACM Classification Keywords

H.5.2. Evaluation/Methodology.

Benefits

Gamification, using game design elements in non-game contexts [2], is a fast-growing research area that uses user experience (UX) design and evaluation methods to

Schedule	
Unit 1	Intro
0-40	Lecture: Introduction to Gamification
41-80	Exercise: Gamify a regular HCI activity
Unit 2	Heuristics
0-9	Recap
10-29	Lecture: How to use Gameful Design Heuristics
30-80	Exercise: Supervised heuristics evaluation session
Unit 3	Gameful Design
0-9	Recap
10-64	Discussion of Designs and Evaluations
65-80	Wrap-up and takeaways for gamification designers

Table 1: The schedule for three 80-minute course sessions at CHI with a break in between.

build interaction technology that increases user motivation and engagement across areas of health, business, and education [4,7] with an increasing focus on personalized experiences [3,9]. For this course, we refer to gamification and gameful design interchangeably, because to us both frame the same set of phenomena from different points of view [1,2,4]. One learning outcome of this course is to train people in gameful design, specifically in the mapping of a regular HCI activity onto a gameful activity. In addition to this, we plan to train participants using our *gameful design heuristics* [8]. This is done through hands-on exploration of gameful heuristics to evaluate a gameful activity that we develop in the first course unit. Through our training, participants will gain gameful design and rapid evaluation skills and learn how to create and refine gameful applications. In a nutshell, participants will learn a gameful design and evaluation method, get access to the tools that are part of the method for their own future use, and gain practical UX design and evaluation skills.

Intended Audience

This course introduces participants to concepts of gamification and practices some gamification evaluation with a set of heuristics used to evaluate gameful applications and gameful design. After a preparation lecture, we will divide participants into groups to work on finding the main activity in any existing application and then turn this activity into a gameful activity. Next, participants will be trained in applying all gameful design heuristics to this new application. Participants will find design gaps in their gameful application regarding the different motivational affordances implemented into the application's design. We will discuss the gameful designs at the end.

Prerequisites

There are no prerequisites for this course, but it would help if participants are familiar with the concepts of heuristics and have an interest in gamification in general. We will make the heuristics and all necessary tools available to the participants via a website and as handouts during the course at CHI.

Content

The course is structured into three units (see Table 1), with two lectures, a gameful design exercise, a heuristic evaluation session, and an in-depth discussion following a hands-on exercise. The course goals are:

- Understand gameful design activities and be able to use gameful design heuristics [8] to improve and iterate gameful applications.
- Understand how to turn design flaws and improvement suggestions into design improvements.

Our lectures provide additional insight into what our gameful design process is and how we believe they can help designers and UX professionals improve their gameful products.

Lecture: Introduction to Gamification

We will give an overview of the field of gamification and put special focus on the practical approaches to gameful design and how to intervene regular product interactions to make them more playful and motivating. We will discuss this using many examples from successful applications of gameful design approaches.

Lecture: Introduction to Gameful Design Heuristics

Heuristics are principles or broad (usability) guidelines that have been used to design and evaluate interactive

systems, but our set of heuristics is aimed at enabling interaction designers to identify gaps in a gameful system's design. We will introduce the 12 heuristics dimensions: Purpose and Meaning, Challenge and Competence, Completeness and Mastery, Autonomy and Creativity, Relatedness, Immersion, Ownership and Rewards, Unpredictability, Scarcity, Loss avoidance, Feedback, Change and Disruption. We will discuss the three categories that they are split into: intrinsic motivation, extrinsic motivation, and context-dependent heuristics and what their origins in the gamification and psychology literature are [1,5,6,9].

Practical Work

This course introduces participants to concepts of gamification and practices some gamification evaluation with a set of heuristics used to evaluate gameful applications and gameful design. After a preparation lecture, we will divide participants into groups to work on finding the main activity in any existing application and then turn this activity into a gameful activity. Next, participants will be trained in applying all gameful design heuristics to the new application. Participants will find design gaps in their gameful application regarding the different motivational affordances implemented into the application's design.

In addition, we are planning a hands-on design action session, where we turn the heuristics results into clear design actions that can be reported back to developers, thus closing the iterative loop between evaluation with heuristics and informed design. This section will build upon our previous work on relating specific gameful design elements to diverse user preferences [9], which complement the gameful design heuristics with an actionable design-oriented framework. We will discuss

and reflect on the gameful designs from the participants at the end in the last course unit.

Background of Instructors

Gustavo F. Tondello, M.Sc., is a Ph.D. student at the HCI Games Group, University of Waterloo, Canada with a main interest in gamification and games for health and learning. He has been investigating several topics related to design, evaluation, and personalization of serious games and gamified applications, particularly regarding the application of player or user typologies in games and gamification. He has evaluated games professionally and has been teaching Computer Science courses at the University of Waterloo as part of his graduate studies.

Lennart E. Nacke, Ph.D., is an Associate Professor for Human-Computer Interaction and Game Design at the University of Waterloo. He has many years of experience serving on SIGCHI program and steering committees and teaching University graduate classes on HCI research methods. Dr. Nacke has co-organized many workshops for CHI over the past five years; he also chaired the CHI PLAY 2014 and Gamification 2013 conferences, served as technical program co-chair for CHI PLAY 2015, and served as the CHI Games and Play subcommittee co-chair for CHI 2017, and is currently the chair of the CHI PLAY steering committee.

Resources

Past iterations of this course can be found at <http://gamefuldesign.hcigames.com/> and the website will be updated to reflect current course content. We will also provide handouts to participants.

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