Gamification Group

GL! HF!...GG!

Tampere University

Turun yliopisto
University of Turku

UNIVERSITY
CONSORTIUM
OF PORI

CENTRES OF EXCELLENCE

A little about me

Dr. Lobna Hassan

Postdoctoral researcher

Gamification Group, Tampere University

Centre of Excellence on Game Culture studies, University of Turku

Researched interests:

Motivational Technology / Gamification

(in media, health, education, civic participation)

Storification

Social media

Virtual Reality

Contact me on Lobna.hassan@tuni.fi

More on: http://lobnahassan.com

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Tampere University

Centre of Excellence in Game Culture Studies

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Professor
HAMARI, JUHO

Senior Research Fellow
NUMMENMAA, TIMO

Postdoctoral Researcher
BURUK, OĞUZ TURAN

Postdoctoral Researcher
HASSAN, LOBNA

Postdoctoral Researcher
KOIVISTO, JONNA

Postdoctoral Researcher
LEGAKI, NICOLETTA

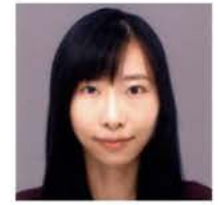
Postdoctoral Researcher
SALMINEN, MIKKO

Postdoctoral Researcher
THIBAULT, MATTIA

Postdoctoral researcher
TUOMI, PAULIINA

Postdoctoral Researcher / Research Manager
VAHLO, JUKKA

Postdoctoral Researcher
XI, NANNAN



Postdoctoral Researcher
XIAO, RUOWEI

Researcher / PhD candidate
AURA, ISABELLA

Researcher / PhD candidate
BUJIC, MILA

Researcher / PhD candidate
FERNANDEZ GALEOTE, DANIEL

Researcher / PhD candidate
JUNG, SANGWON

Researcher / PhD candidate
JYLHÄ, HENRIETTA

Researcher / PhD candidate
KLOCK, ANA

Researcher / PhD candidate
KORKEILA,

Researcher / PhD candidate
MACEY, JOSEPH

Researcher / PhD candidate
TÖRHÖNEN,

Researcher / PhD candidate
WALLIUS, EETU

Researcher
JÄRVELÄ, SIMO

Gamified education:
Theories, Practices & Recent Trends

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World of Warcraft

Penny from the Big Bang Theory

UUTISET

Pelaaminen vähentää nuorten miesten työntekoa

klo 10:24 | 20.9.2017

Gaming reduces the “productivity” of young men

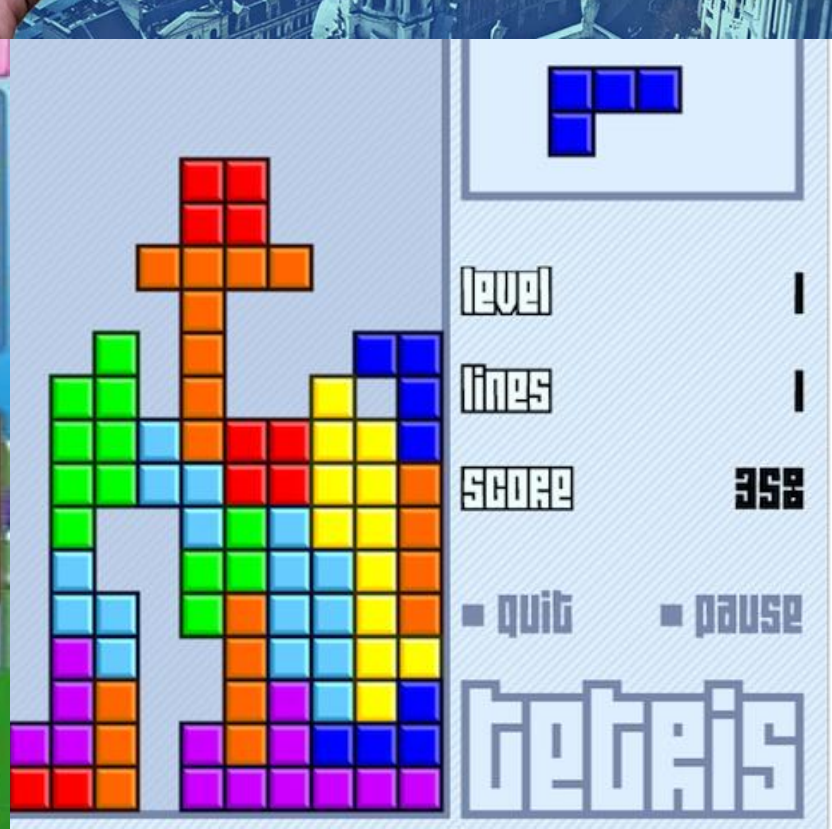
Pelit ovat koukuttaneet nuoria miehiä lisäämään vapaa-aikaansa. Kuva: Kai Tirkkonen


Solitaire
Game Help


Pokémon
GO


3209
9


Target: 20000
Moves:
23
Score:
11340


level
lines
score
358
quit
pause
tetris

Some benefits of games

(e.g. Cranic et al. 2014; Malone 1981; Hamari & Keronen 2017; Koivisto & Hamari 2019)

- **Cognitive**
  - Attention allocation, spatial comprehension, visual prosession & problem rotation ability, hand-eye-coordination
  - Problem solving strategies, multitasking
  - Curiosity, playful strategies to find solutions
- **Social (>70% of gaming is social (ESA 2012))**
  - Relatedness, SoC, cooperative behavior
  - Competitive settings
  - Organization and leadership skills
  - Empathy, roletaking, prosocial behavior
- **Motivational**
  - Trait/entity vs effort/incremental –motivational style: ”Good boy/girl” vs ”Good that you worked hard!”
  - Persistence
  - Autonomy
  - Optimism, sense of competence
- **Emotional**
  - Mood, relaxation, reduced anxiety
  - Flow, immersion (AV and story)

Positive experiences that feed productivity, learning and overall happiness

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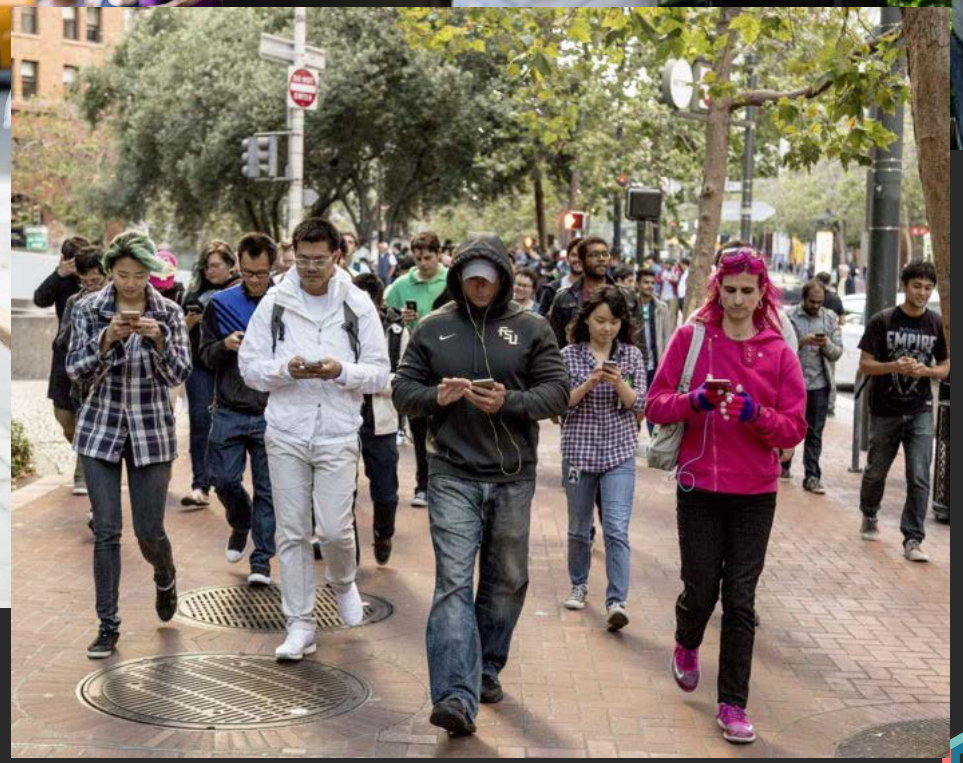
Lv 9
Lynn96
Nearby
POKÉMON
GO
TM

Organically forming collaboration



Shared problem solving

Mutual goals

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Meanwhile……

http://finnishness.blogs.tamk.fi/files/2017/09/bussipysakki-jono-tampere-

What if we could transform the world into being more game-like through technology?

= Gamification / Pelillstäminen

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Gamification

Pelillistäminen

A process of *designing systems, services, organizations, activities* etc.,
to afford similar experiences as games do
commonly through game design techniques

Hamari, 2019

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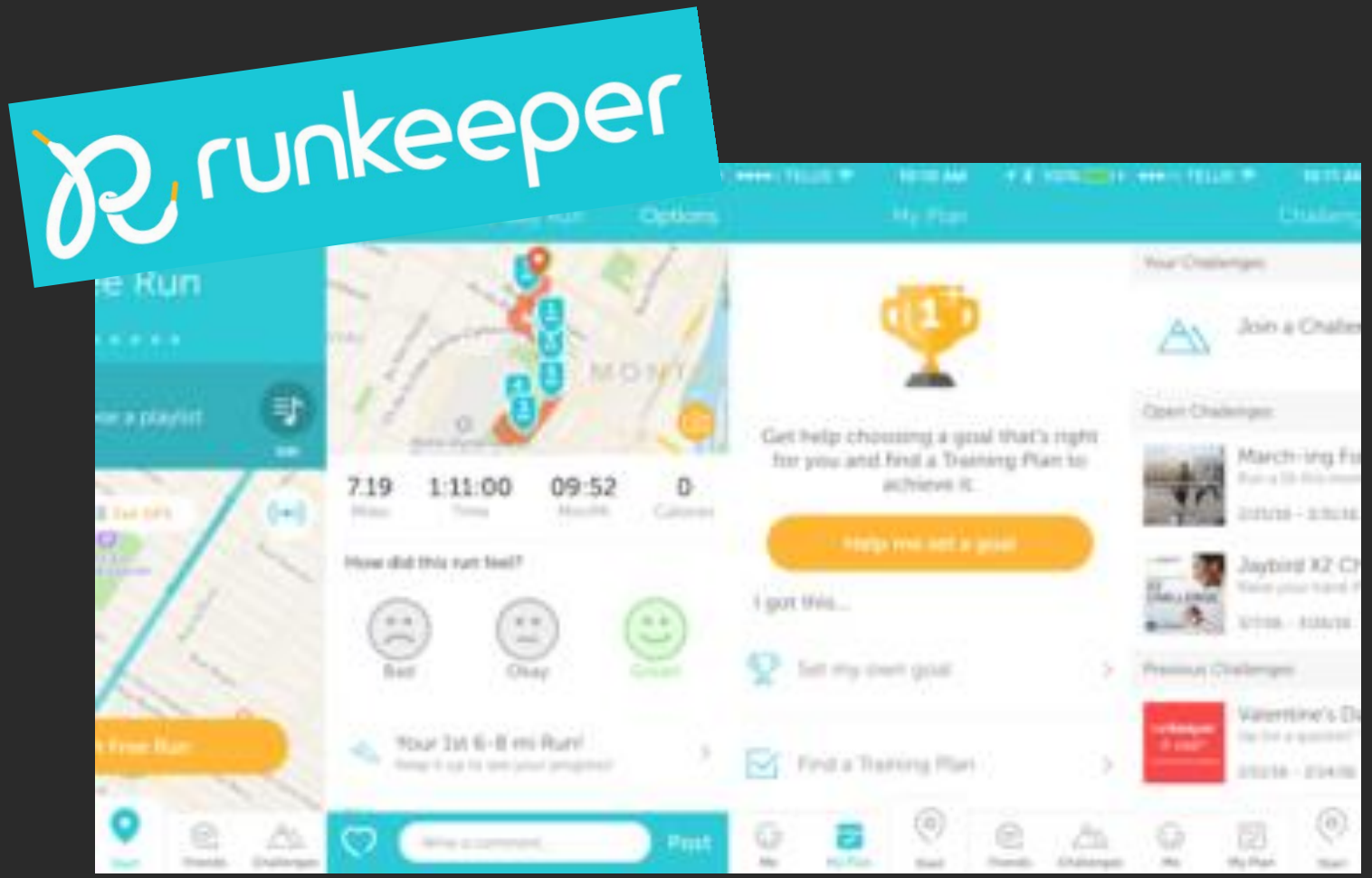
Visual aesthetics
Music
Missions
Stories
Cooperation
Points
Points
Teams
Badges
Progress bars
Leaderboards
Competition

Gamification of exercise



- Points
- Goals
- Badges
- Competition
- Leaderboards

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It works!

Until it doesn’t…

Caution!
(Reward-based gamification)

- Designs reliant on ”throwing game elements” at the problem don’t usually work
- Gamification void of meaning or purpose doesn’t usually work
- Some designs just make activities complicated rather than meaningful
- Some designs can instill a hunger for rewards which is unsustainable
- Generic designs ignore user preferences, different needs, skills, etc.

- Success is hence short termed (which might be the objective sometimes but not always)


Visual aesthetics
Music
Missions
Stories
Cooperation
Games are more than the collection of their parts
Teams
Badges
Progress bars
Leaderboards
Competition

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How to design gamification? A method for engineering gamified software

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Keywords:
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Software engineering
Design science research
Persuasive technology
Gameful design
Playfulness
Game design

ABSTRACT

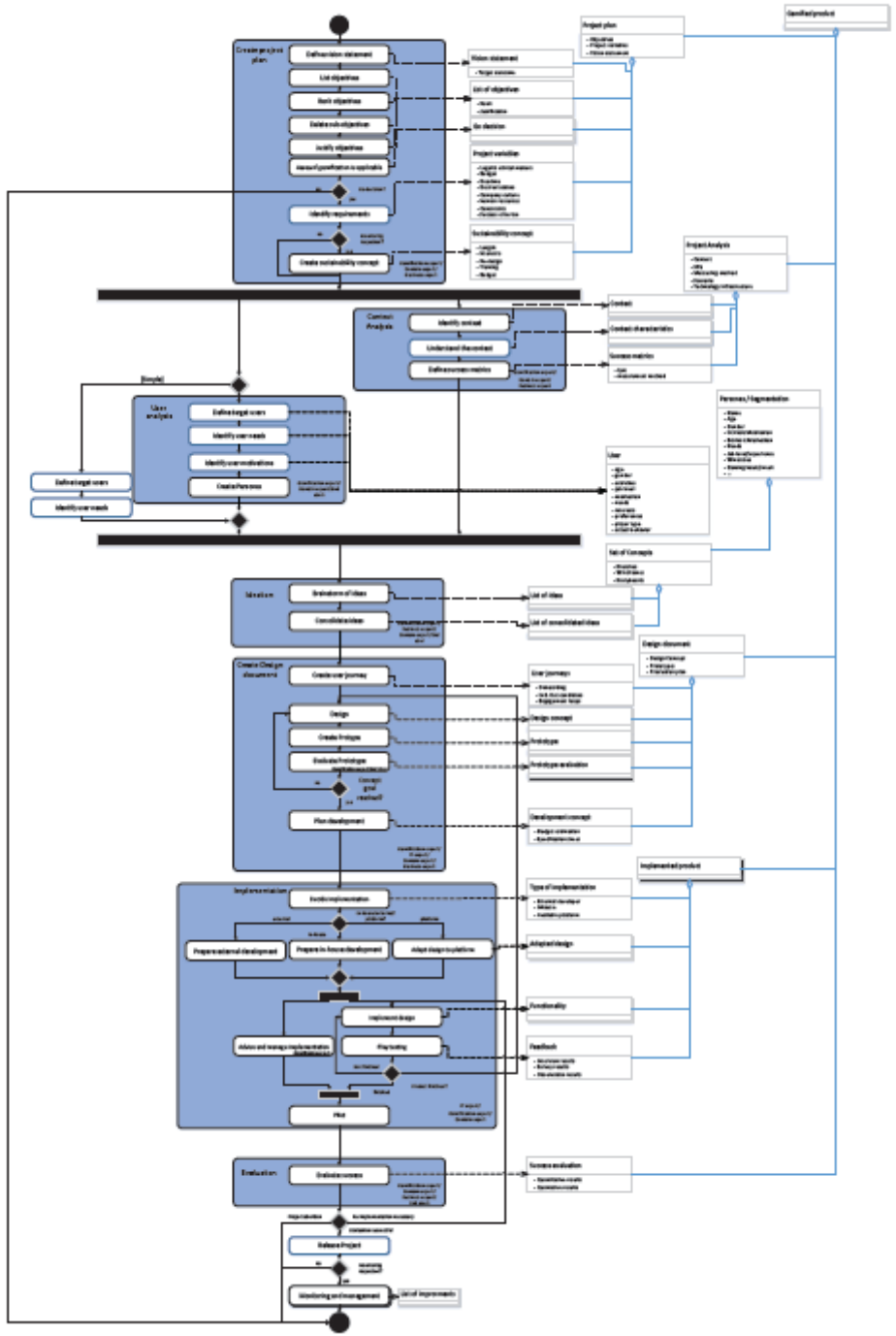
Context: Since its inception around 2010, gamification has become one of the top technology and software trends. However, gamification has also been regarded as one of the most challenging areas of software engineering. Beyond traditional software design requirements, designing gamification requires the command of disciplines such as (motivational/behavioral) psychology, game design, and narratology, making the development of gamified software a challenge for traditional software developers. Gamification software inhabits a finely tuned niche of software engineering that seeks for both high functionality and engagement; beyond technical flawlessness, gamification has to motivate and affect users. Consequently, it has also been projected that most gamified software is doomed to fail.

Objective: This paper seeks to advance the understanding of designing gamification and to provide a comprehensive method for developing gamified software.

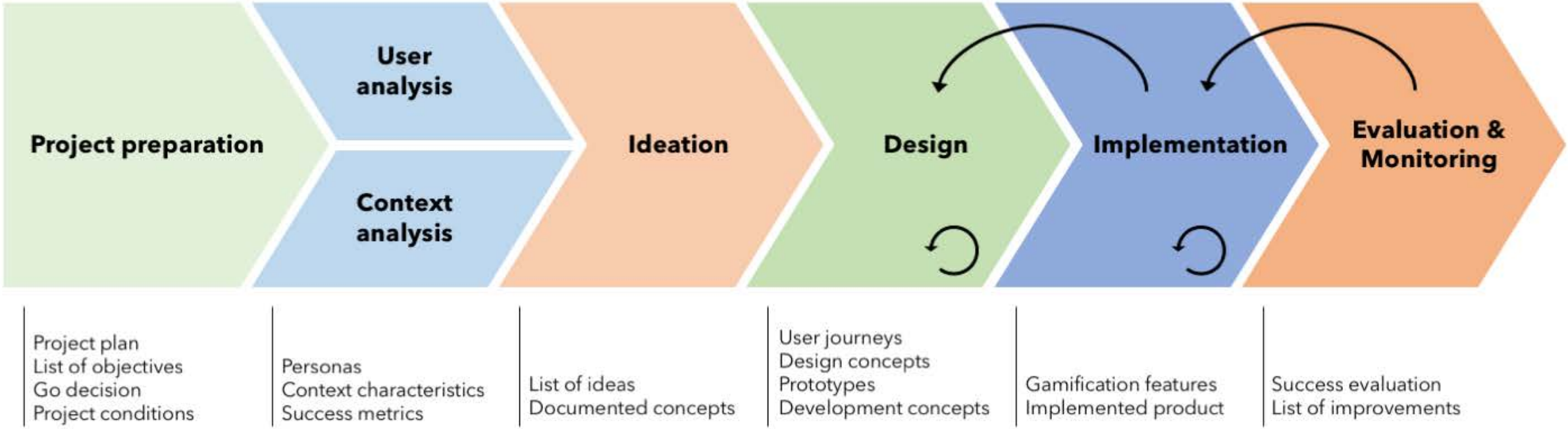
Method: We approach the research problem via a design science research approach; firstly, by synthesizing the current body of literature on gamification design methods and by interviewing 25 gamification experts, producing a comprehensive list of design principles for developing gamified software. Secondly, and more importantly, we develop a detailed method for engineering of gamified software based on the gathered knowledge and design principles. Finally, we conduct an evaluation of the artifacts via interviews of ten gamification experts and implementation of the engineering method in a gamification project.

Results: As results of the study, we present the method and key design principles for engineering gamified software. Based on the empirical and expert evaluation, the developed method was deemed as comprehensive, implementable, complete, and useful. We deliver a comprehensive overview of gamification guidelines and shed novel insights into the nature of gamification development and design discourse.

Conclusion: This paper takes first steps towards a comprehensive method for gamified software engineering.



How to design gamification? A method for engineering gamified software



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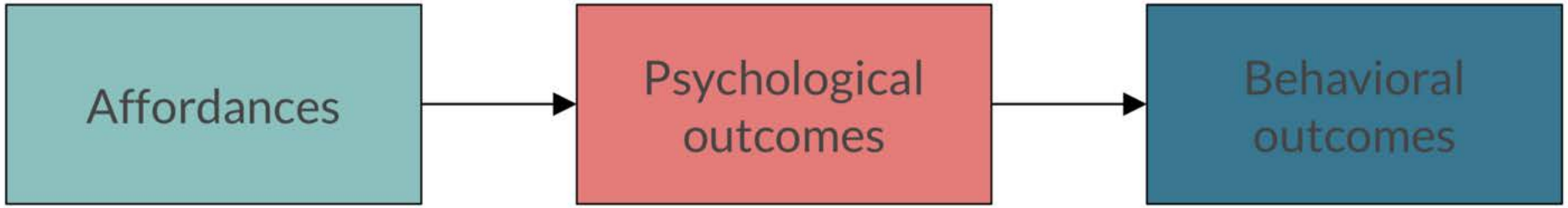
Gamification conceptualization



Hamari et al. 2014

Affordances = Designed properties of a system, either perceived or actual, that determine how a person may use the given system

Psychological outcomes = Psychological effects and experiences that the gamification implementation is seeking to support the user towards

Behavioral outcomes = Any activities or behaviors that the gamification seeks to support

Game /gamification design is complex

They require an understanding of

- Psychology
- Sociology
- Aesthetics and design
- Project management
- Monetization & business aspects
- Programing & UX development
- And a lot more ….

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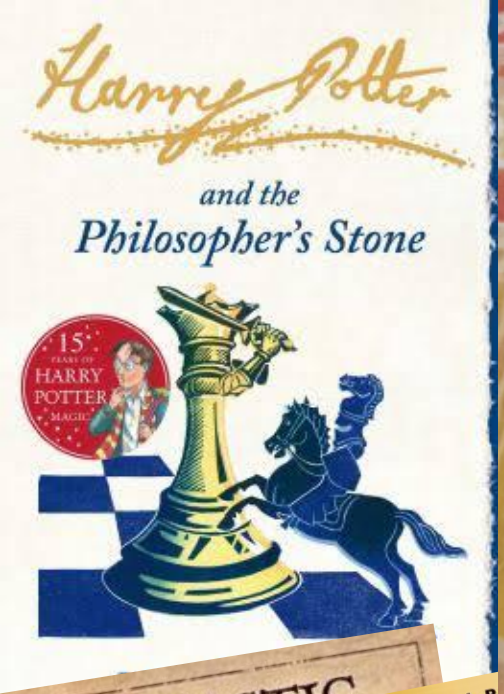
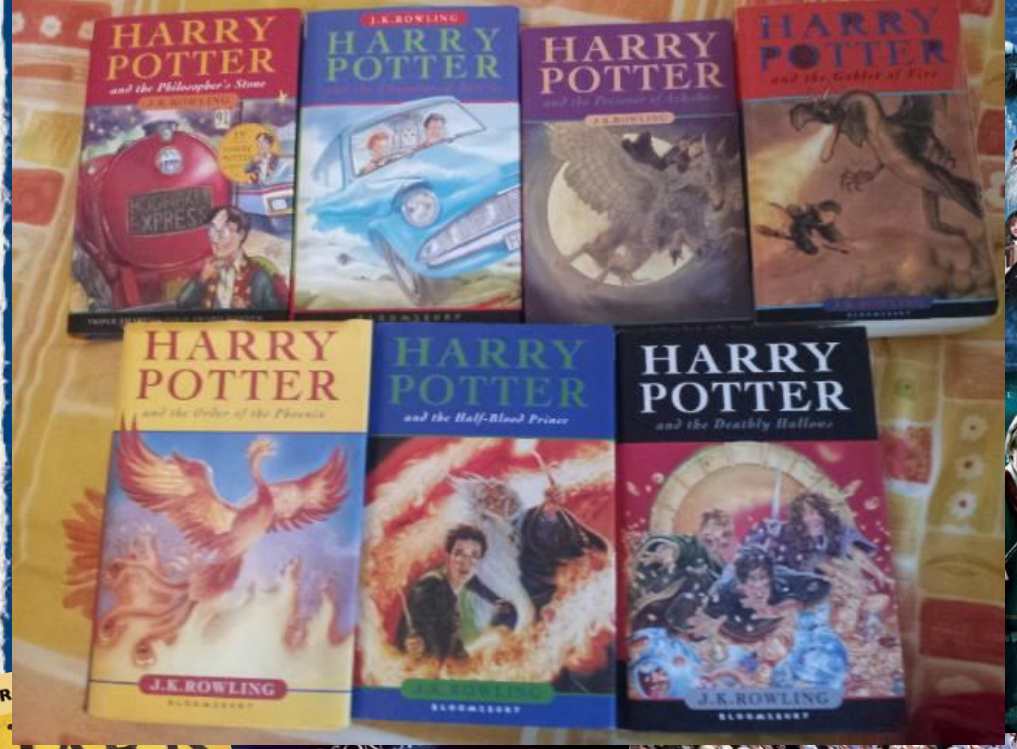
So….. How do we do that in practice?

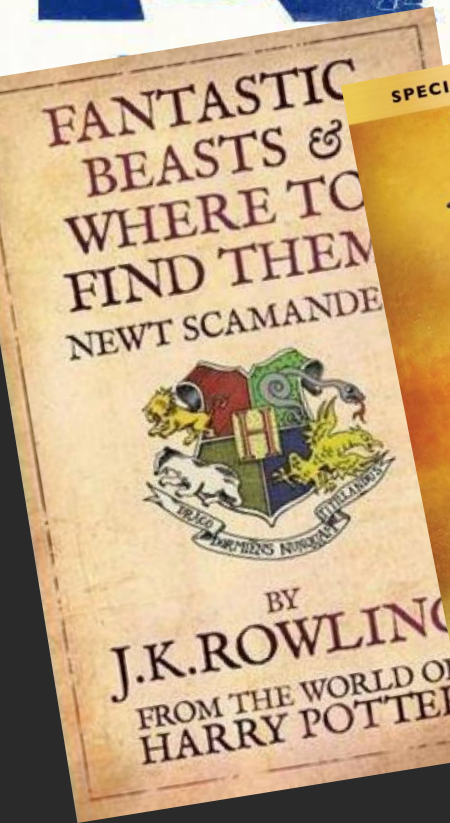
We don’t have full recipes yet
But here are a few cakes for inspiration!


W/NBS
+HBr
WESTERMANN · DIERCKE-KARTE
1:6 000 000


Harry Potter
and the
Philosopher's Stone
15 YEARS OF HARRY POTTER MAGIC


HARRY POTTER
and the Philosopher's Stone
J.K.ROWLING
HARRY POTTER
HARRY POTTER
and the Prisoner of Azkaban
HARRY POTTER
and the Goblet of Fire
HARRY POTTER
and the Order of the Phoenix
J.K.ROWLING
HARRY POTTER
and the Half-Blood Prince
HARRY POTTER
and the Deathly Hallows
J.K.ROWLING


Harry Potter
and the Philosopher's Stone
Harry Potter
and the Chamber of Secrets
Harry Potter
and the Prisoner of Azkaban
Harry Potter
and the Goblet of Fire
Harry Potter
and the Order of the Phoenix
Harry Potter
and the Half-Blood Prince
DARK SECRETS REVEALED
JULY 15
Harry Potter
and the Deathly Hallows
PART 1 OF THE EPIC FINALE IS BY
Harry Potter
and the Deathly Hallows
IT ALL ENDS 7.15


FANTASTIC
BEASTS &
WHERE TO
FIND THEM
NEWT SCAMANDE
BY
J.K.ROWLING
FROM THE WORLD OF
HARRY POTTER


SPECIAL R
HARRY
POTTER
AND THE
CURSED CHILD
PARTS ONE AND TWO
BASED ON AN ORIGINAL NEW STORY BY
J.K. ROWLIN
JOHN TIFFANY & JACK TH
A NEW PLAY BY JACK THORNE


EMERSON
MUGGLENET.COM'S
HARRY
POTTER
SHOULD
HAVE
DIED
CONTROVERS
FROM THE #
This book is not associate
approved by J.K. Rowling, her


THE HARRY POTTER ALLIANCE

Group

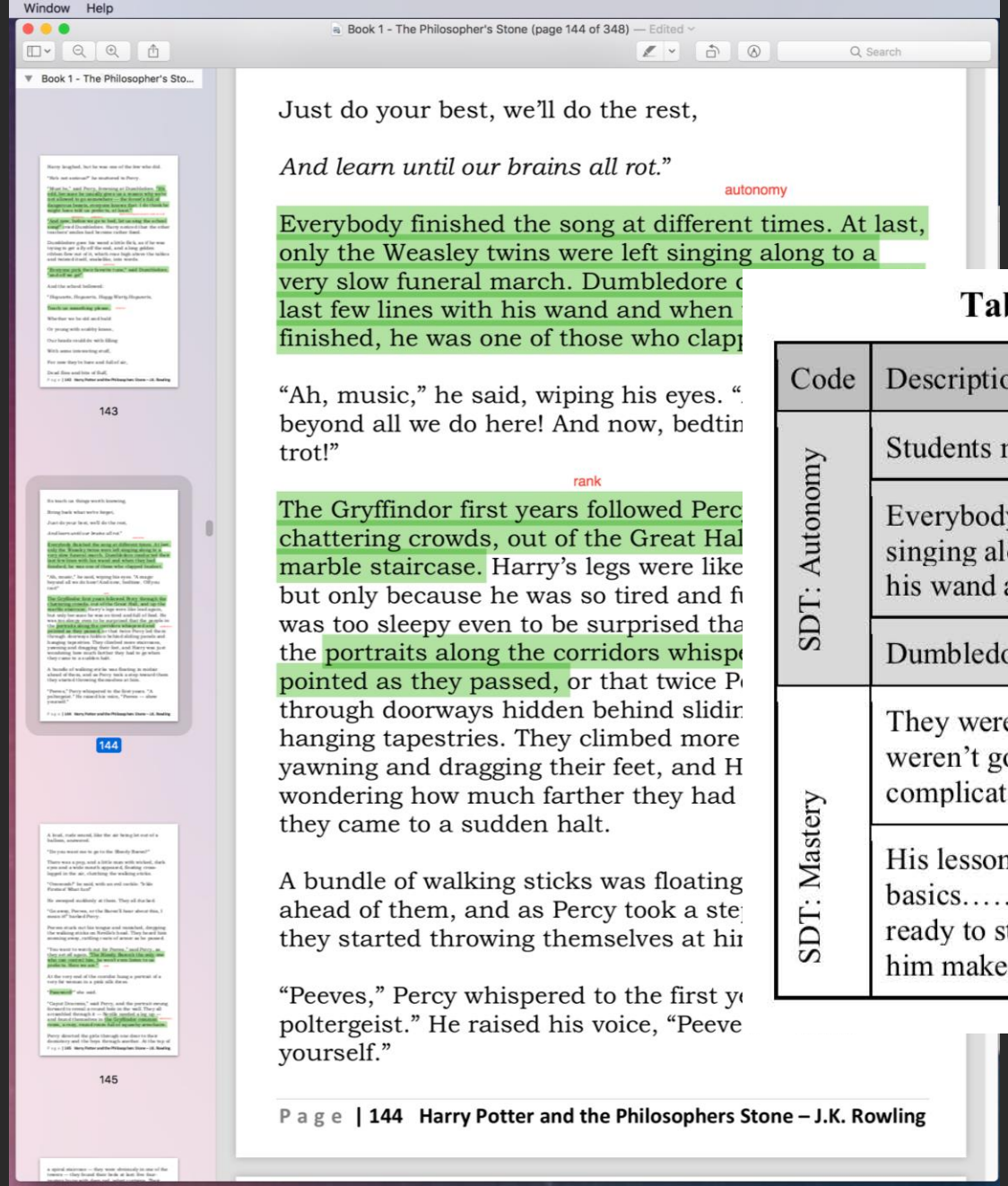


Table 1: Coding of key instances of gamified education at Hogwarts

Code	Description in text	Page	ID
SDT: Autonomy	Students may also bring an owl or a cat or a toad	75	#1
	Everybody finished the song at different times. At last, only the Weasley twins were left singing along to a very slow funeral march. Dumbledore conducted their last few lines with his wand and when they had finished, he was one of those who clapped loudest.	144	#2
	Dumbledore had swapped his pointed wizard's hat for a flowered bonnet.	228	#3
SDT: Mastery	They were all very impressed and couldn't wait to get started, but soon realized they weren't going to be changing the furniture into animals for a long time. After taking a lot of complicated notes, they were each given a match and started trying to turn it into a needle.	149	#4
	His lessons, too, were becoming more and more interesting now that they had mastered the basics……. Even better, Professor Flitwick announced in Charms that he thought they were ready to start making objects fly, something they had all been dying to try since they'd seen him make Neville's toad zoom around the classroom.	191	#5

Enter Hogwarts: Lessons on how to gamify education from the wizarding world of Harry Potter

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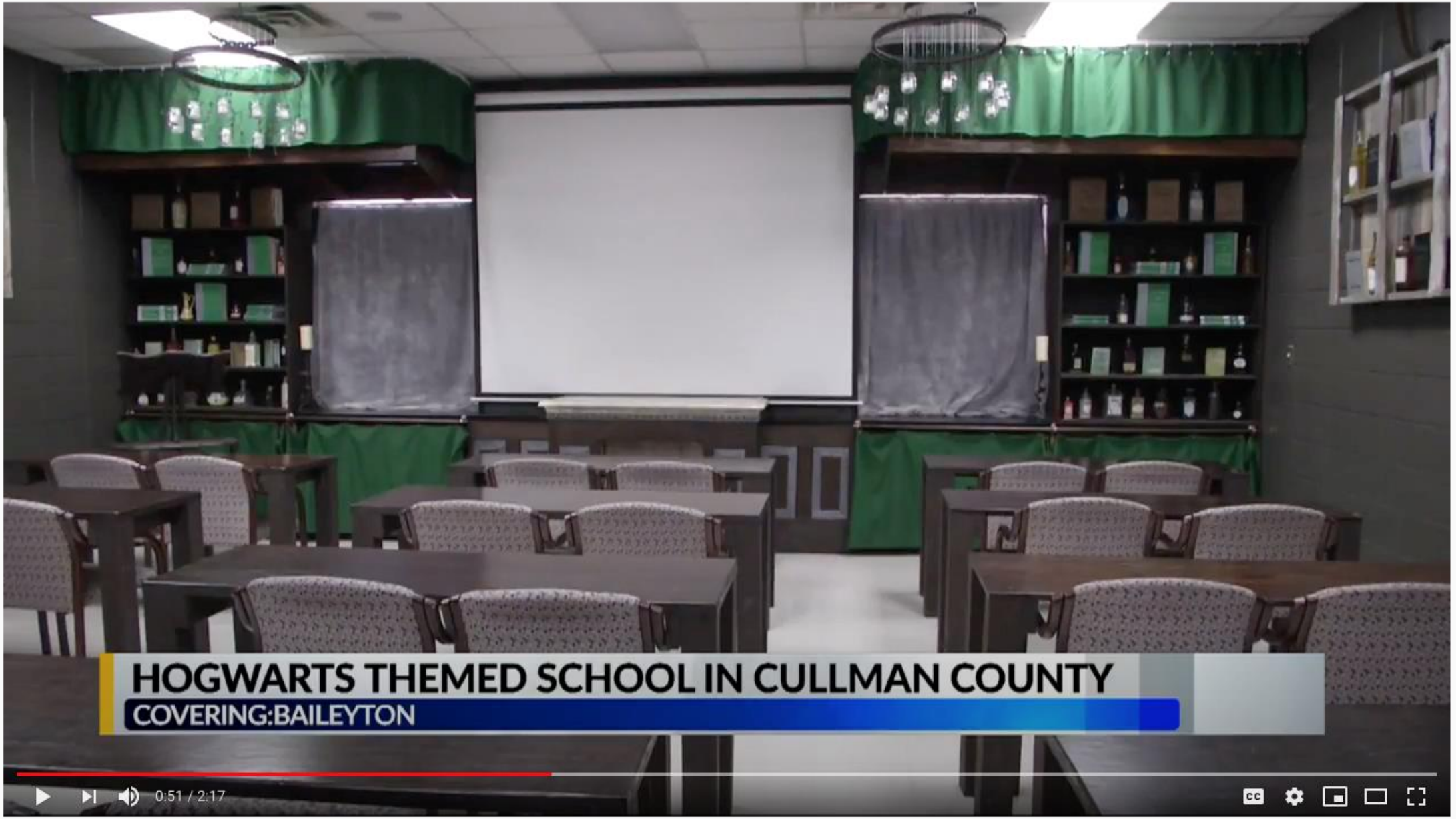
Abstract: The design of an engaging educational experience is a challenging endeavor. Various attempts have been made to gamify education as means to improve learner engagement and learning outcomes, yet the search for more engaging and effective educational designs continues. This pursuit can borrow inspiration from the fruits of popular media; namely from, e.g. the global, sensational school of magic education: Hogwarts, as described in the *Harry Potter* novel series by *J. K. Rowling*. In this paper we investigate the research question: *What can we determine about gamified education at Hogwarts and what implications can gamifying education have?* We employed a textual analysis method and coded evidence of gamified education in the first novel in the popular media series: *Harry Potter and the Philosopher's Stone*. We identified overlaps between the design of Hogwarts and the gamification design practices that attempt to cultivate learner engagement through the self-determination theory, competition, collaboration, clear rules, roles, badges and aesthetics. This work hence enriches the discussion of the possible positive and negative consequences of gamification in education. Moreover, this treatise functions as a cultural commentary on the interaction between artefacts of popular media and what we perceive as virtuous in the different walks of life.



Hogwarts themed hallway and classrooms at Cullman County school

483 views • Aug 4, 2018

9 0 SHARE SAVE ...

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Isabella Aura
Song of the day
"Don't Stop Believin'"
- Journey
Uncle Bilius
TIDE

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BEYOND MEASURE
NS GREATEST
TREASURE


Raven

2 week research visit
15 focus groups
79 students
11 staff interviews
27 graduates
5 parents

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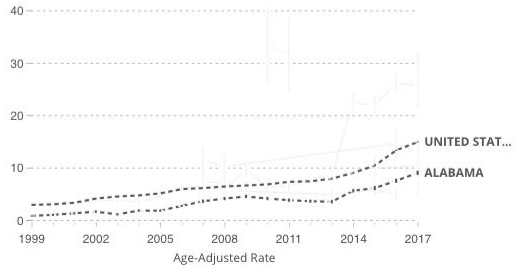
ication Group

Cullman County Opioid Death Statistics

Opioid overdoses have skyrocketed since the late 1990's, becoming the worst drug epidemic in modern American history. In 2017, there were over 47,000 opioid overdose deaths in the United States—more than from automobile accidents or firearm-related homicides. Many of those overdose deaths were from heroin and black-market fentanyl, which are surging in popularity.

This report presents data on opioid deaths in Cullman County, Alabama, from the Centers for Disease Control and Prevention (CDC).

Opioid Deaths per 100,000 Pop.



No data for this selection.

HISTORICAL DATA BELOW IS FOR EXAMPLE PURPOSES ONLY

At risk children

Poor home conditions

Limited resources

School disengagement

Future prospects?

Keep kids at school

Home-like space

School/teacher care

School engagement

Future prospects!

Relatable characters/story

Identification

Embodiment

“Education is Harry’s way out”

Goal-setting

Purpose

Empowerment

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Furniture

Walls, floors

Home atmosphere

Comfort

Self-expression

Autonomy

Social interaction

Transportation

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Furniture

Walls, floors

Home atmosphere

Comfort

Self-expression

Autonomy

Social interaction

Transportation

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Integration into schoolwork

To teach vocabulary

Chemistry

Morality

Student projects

Enjoyment

Engagement

Motivation

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Points

Rewards

Goal-setting

Motivation

Collaboration

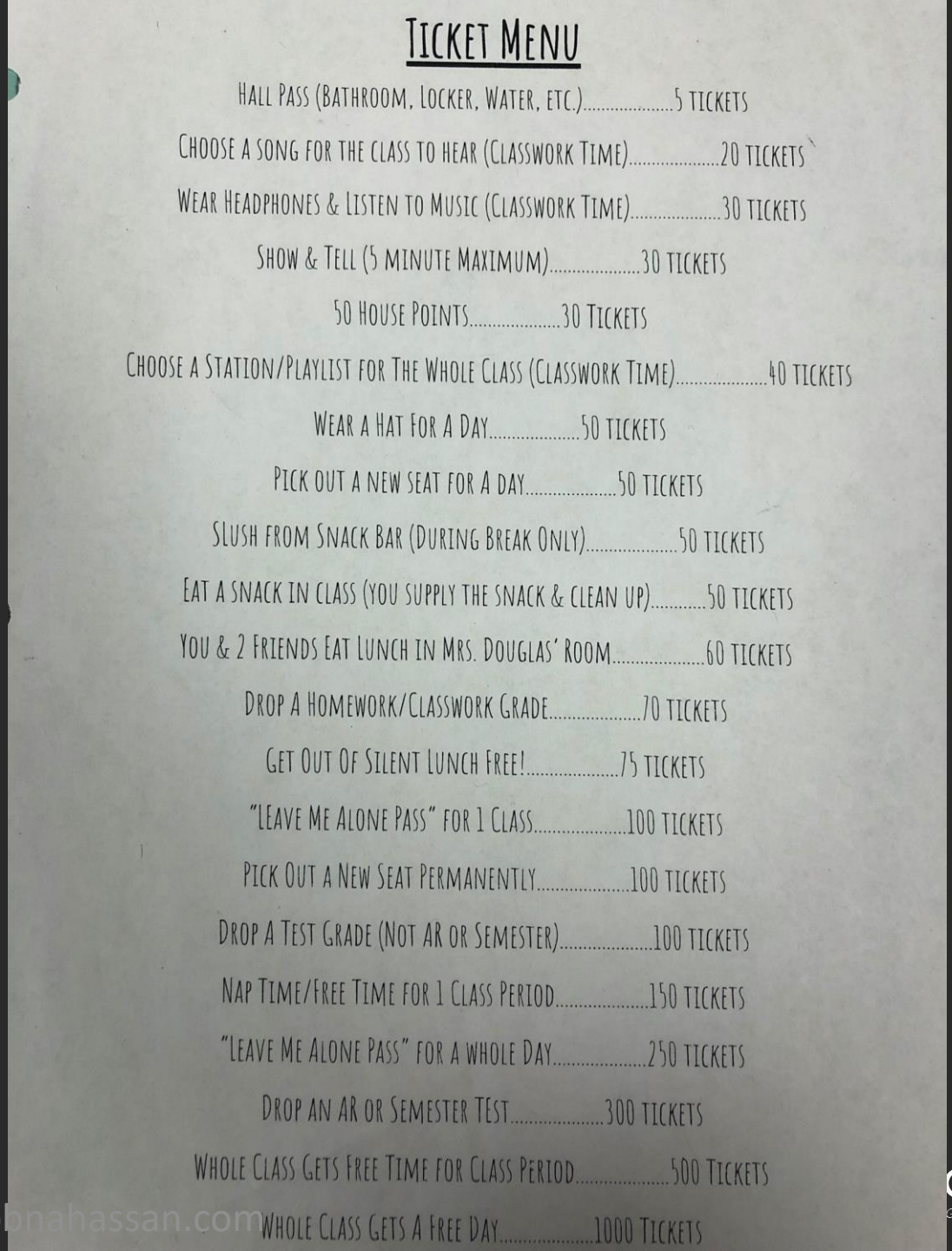
Autonomy

Social interaction

Life skills

Cheating

(hyper) competitiveness



Ticket Menu

Hall Pass (Bathroom, Locker, Water, etc.).....5 tickets

Choose a song for the class to hear (Classwork Time).....20 tickets

Wear Headphones & Listen to Music (Classwork Time).....30 tickets

Show & Tell (5 minute maximum).....30 tickets

50 House Points.....30 Tickets

Choose a Station/Playlist for the Whole Class (Classwork Time).....40 tickets

Wear a Hat for a Day.....50 tickets

Pick out a new seat for a day.....50 tickets

Slush from Snack Bar (During Break Only).....50 tickets

Eat a snack in class (you supply the snack & clean up).....50 tickets

You & 2 Friends Eat Lunch in Mrs. Douglas' Room.....60 tickets

Drop a Homework/Classwork Grade.....70 tickets

Get Out of Silent Lunch Free!.....75 tickets

"Leave Me Alone Pass" for 1 Class.....100 tickets

Pick Out a New Seat Permanently.....100 tickets

Drop a Test Grade (Not AR or Semester).....100 tickets

Nap Time/Free Time for 1 Class Period.....150 tickets

"Leave Me Alone Pass" for a whole Day.....250 tickets

Drop an AR or Semester TEst.....300 tickets

Whole Class Gets Free Time for Class Period.....500 Tickets

Whole Class Gets a Free Day.....1000 Tickets

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School engagement

Better academic performance

School ownership

Less negative behavior

Significantly less detention

Some cheating (as always))

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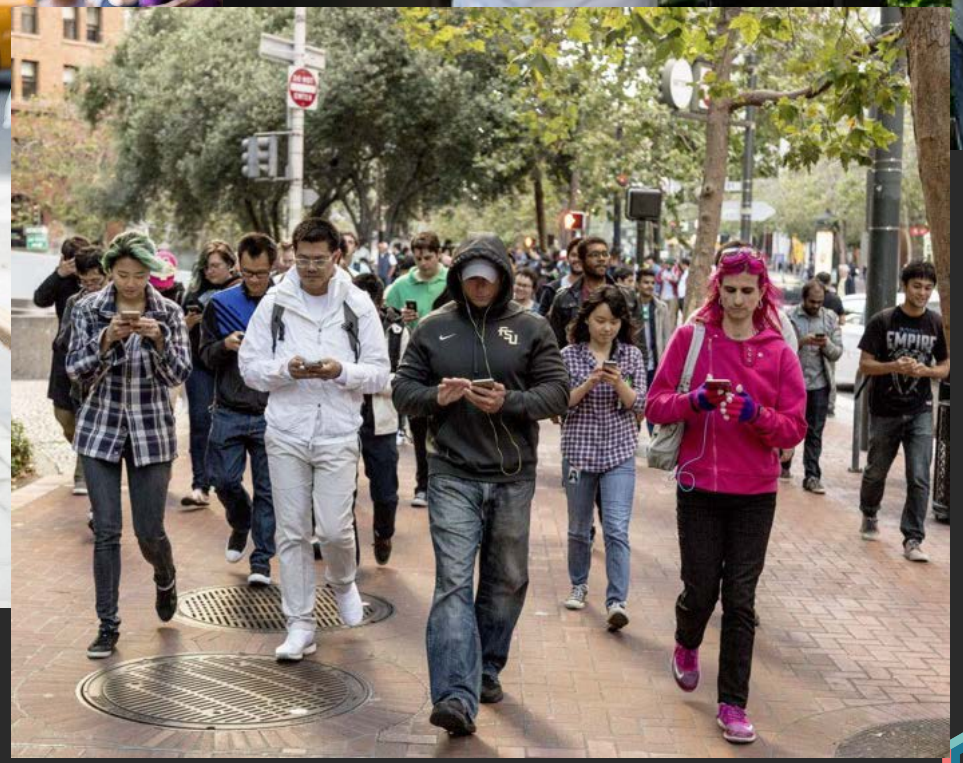
Can we translate this to “grown up” applications?


Lv 9
Lynn96
Nearby
POKÉMON
GO
TM

Organically forming collaboration



Shared problem solving

Mutual goals

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Positive perceptions of physical, mental, and social health

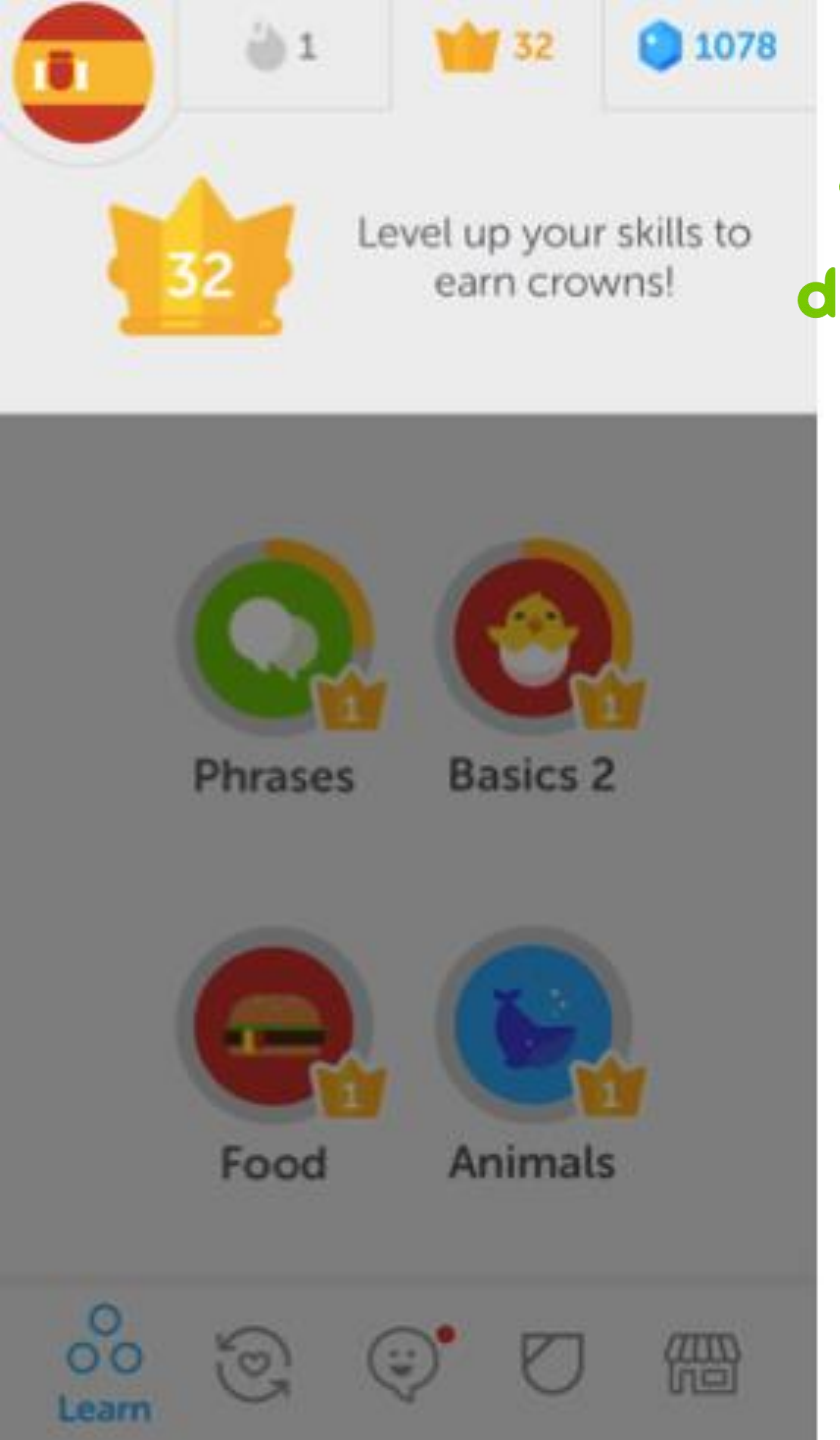
(Koivisto et al. 2019)


ABEL TOWNSHIP
POPULATION 60
slide to run!


JOLLY ALPHA FIVE NINER
5.63
KM
12:24
TIME
7.56
PACE (KM)
Collected Item
Tinned Food
01:38
Collected Item
Trousers
01:38
Collected Item
Mobile Phone
01:36
Collected Item
Bandages
01:36
Collected Item
First Aid Kit
01:36
Incoming Transmission
Escaping the Crash Site
01:34


ZOMBIES, RUN!
HOSPITAL
POPULATION: 60
1
1
2
1

COURTESY DERRICK SMITH



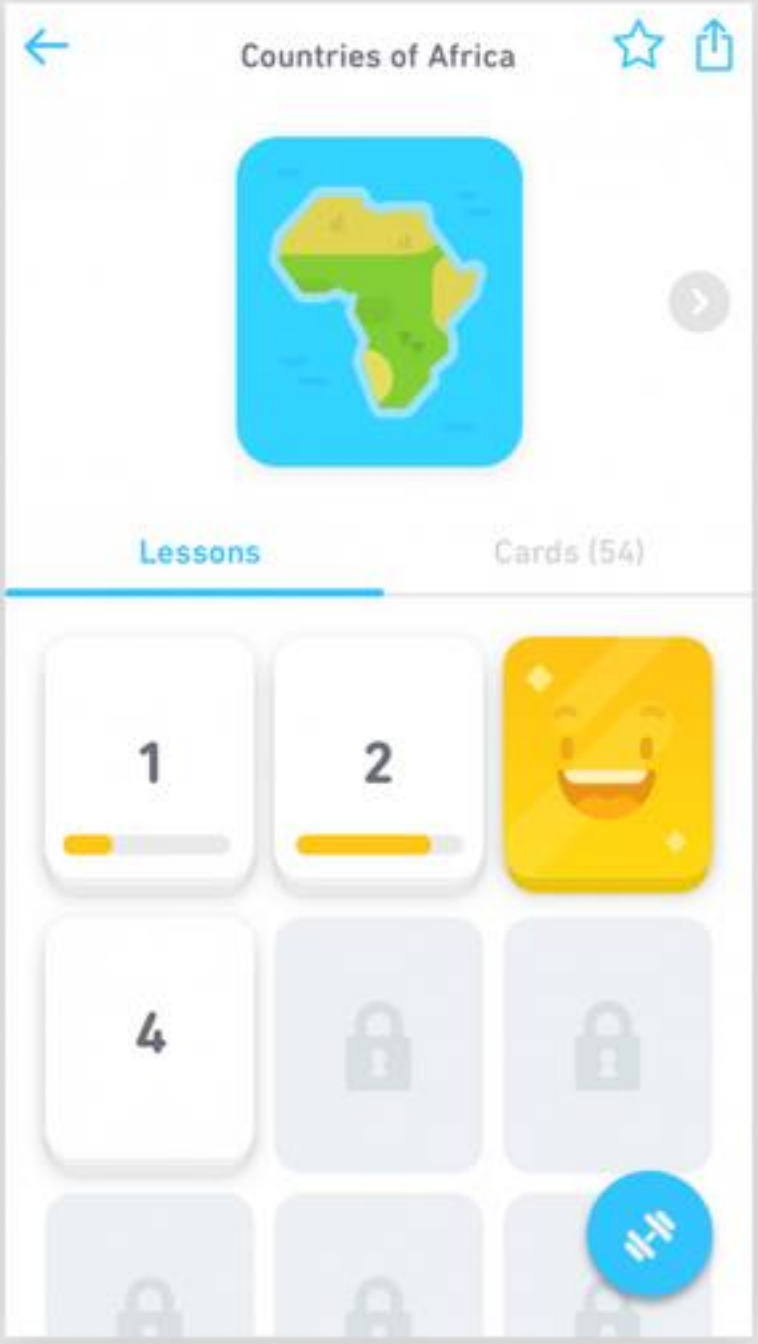
duolingo

You've reached the maximum level in Basics 1

CONTINUE


tinycards
by duolingo
GET STARTED
SIGN IN WITH DUOLINGO


Your Stream
Trending
The Solar System
Learn to identify the eight planets that are constantly in orbit around the sun.
TinyScience
65
Spanish Basics 2
Contains words from the Basics 2 skill from the Duolingo Spanish course.
Duolingo
205
Countries of Africa
Study the 54 countries of the world's second-largest continent.
TinyGeo
125
Greek Gods


Countries of Africa
Lessons
Cards (54)
1
2
4

In conclusion:

Human-centric design

- Games/Gamification are not “magic engagement pills made of points and badges”
- Think about people who will use your gamification: what do they like, dislike, find motivating
- Think about what they need to reach their goals and use design to get them there
- The same thing will not “click” with everybody all the time
- Unintentional, “bad” outcomes are expected aspects of life
- Design often requires responsibility and ethics

Thank You!

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GL! HF! . . . GG!

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