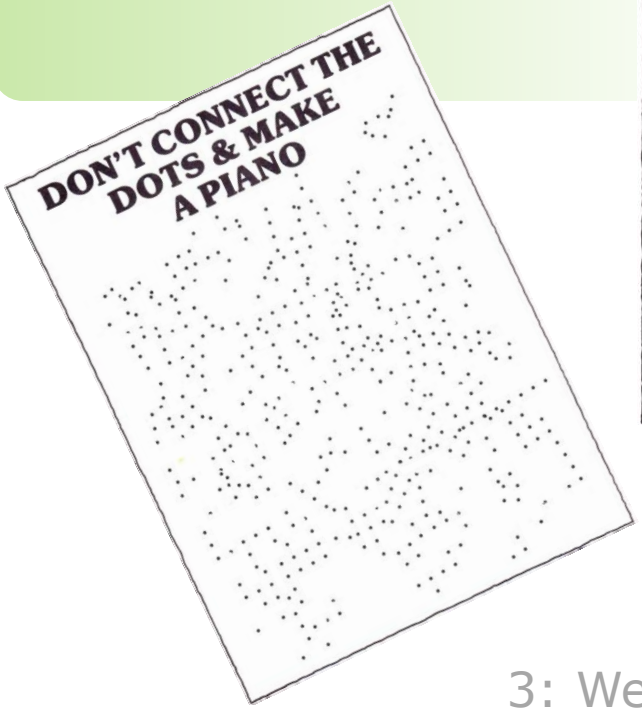
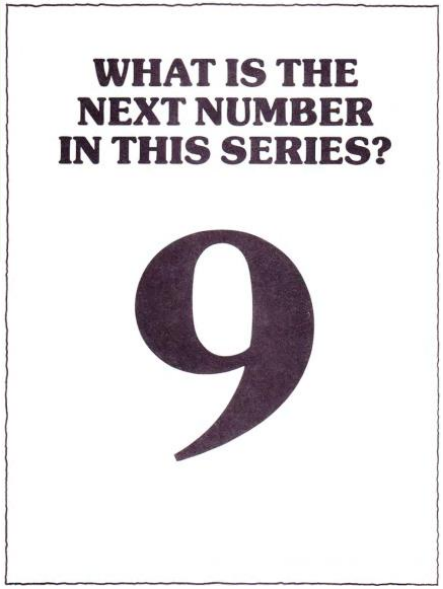
The Virtue of Failure





Designing Games You Can't Win for Learning

Dana Ruggiero,
Bath Spa University, UK

Katrin Becker,
Mount Royal University, Canada

3: Wed. May 14 10:15-11:15

1. Intro: What does it mean to win?
2. Unwinnability: Accidental vs Deliberate
3. Does Winnabililty Matter?
4. What about Productive Failure?
5. Examples
    1. Sept. 12
    2. Sweatshop
    3. Spent
    4. Real Lives
    5. Darfur / Global Conflicts
6. Designing the Unwinnable
7. What next?

The EndGame

What makes a game a game?

- Interactive
  - Rules
  - Goal
- Quantifiable measure of progress (or success)
- Definite Ending

- Interactive
  - Rules
  - Goal
- Quantifiable measure of progress

  (or success)
- Definite Ending

What makes a game a game?

It is often assumed that every game must have a win state.

What if the win state is that you DON'T?

Winning?

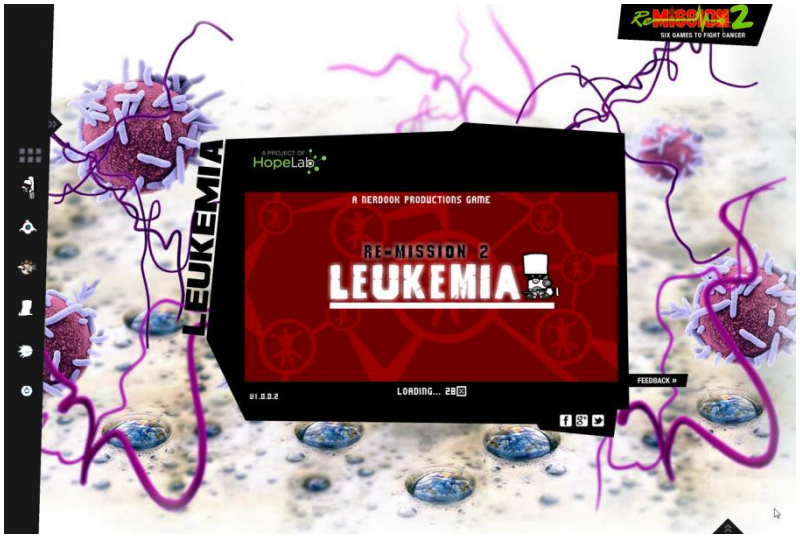
1

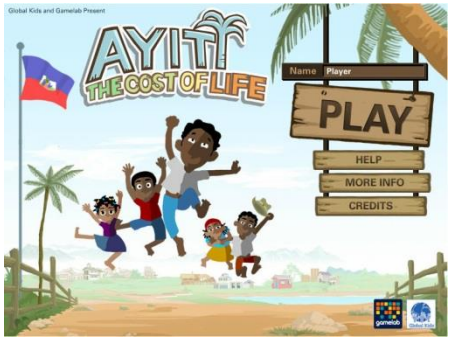
Can losing be winning?

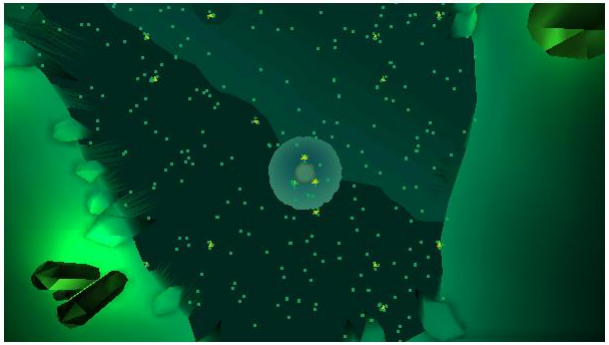
Winning?

1

Serious Games have a message.







What vs How

Unwinnable

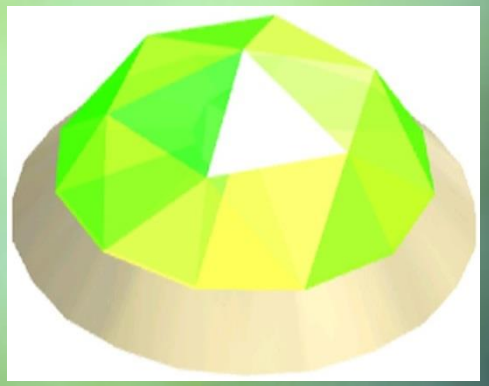
By Mistake:

1. Oversight: Essential items become un-obtainable
2. Out-Dated: Advances in hardware alter game
3. Poor Design: too hard
4. Incomplete/ Incompatible Rules

By Design: Design Choice

1. No End
2. End is moving target
3. Deliberate Design: Too Hard
4. No Happy Ending.

Unwinnable by Mistake: Oversight



http://pikmin.wikia.com/wiki/Libra

Pikmin:
Libra and the Abyss

PIKMIN 2

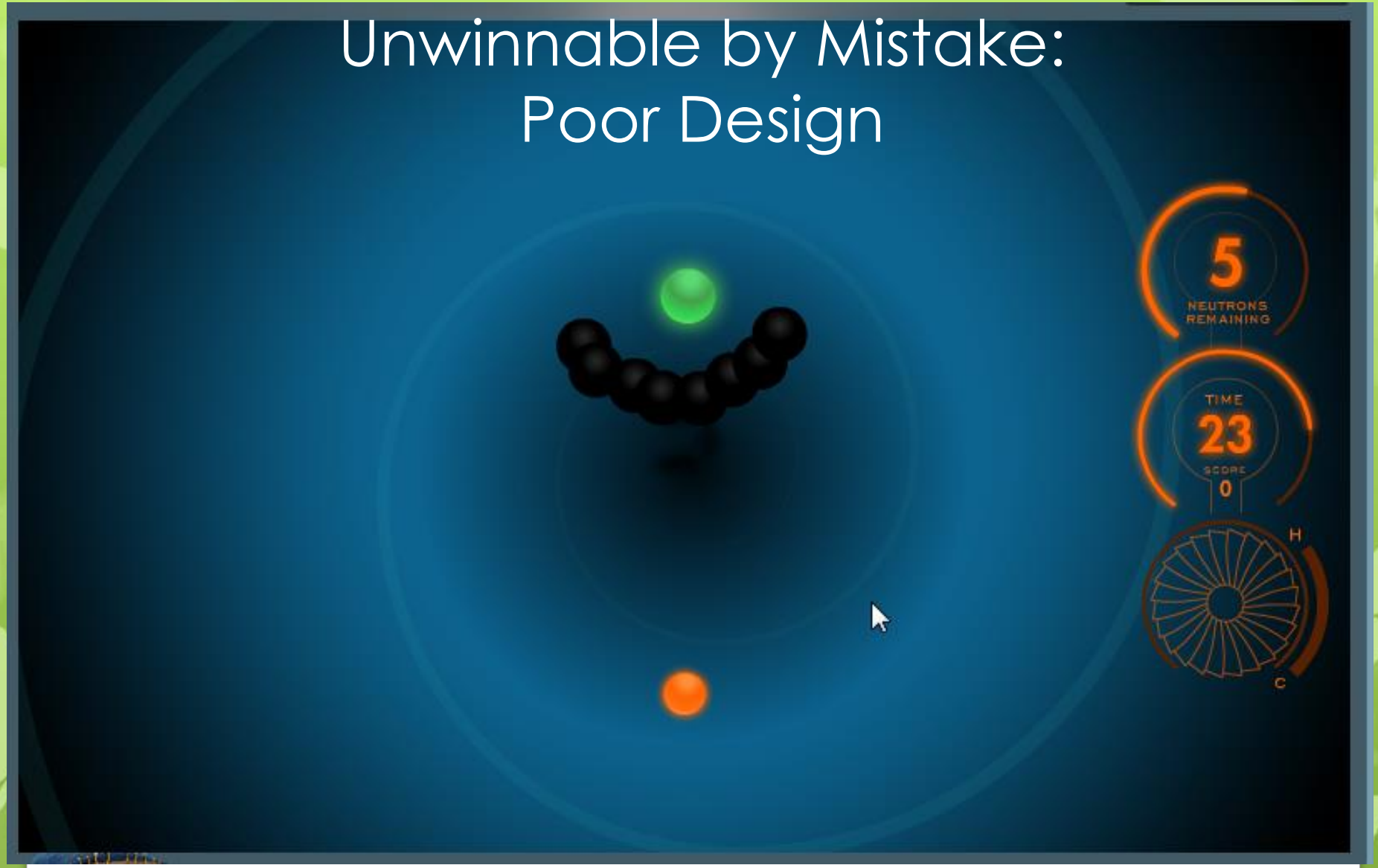
2

Unwinnable by Mistake: Outdated

Grim Fandango

2

Unwinnable by Mistake: Poor Design



Fission Impossible

Unwinnable by Mistake: Incompatible / Incomplete Rules

Bioshock 2

2

to be avoided,
serious or not

Unwinnable by Mistake

2

Unwinnable by Design?

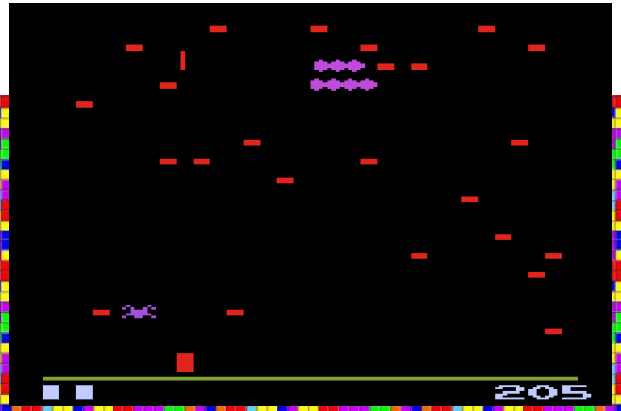
1. No End.
2. End is moving target.
3. Too Hard
4. No Happy Ending.

Unwinnable by Design

Online Games have no end by design.

Most online games have no end because….
How else do you keep people playing?

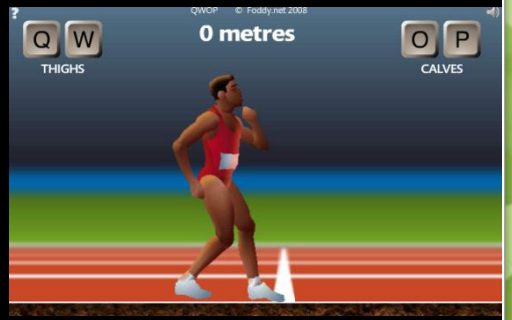
Unwinnable by Design: No End



Some puzzle games have no end by generating a potentially infinite number of levels.

Image Credit: http://blog.lib.umn.edu/huber195/psy1001spring12/2012/04/tetris-its-more-than-just-a-game.html

Unwinnable by Design: Too Hard



Livegen
www.livegen.fr

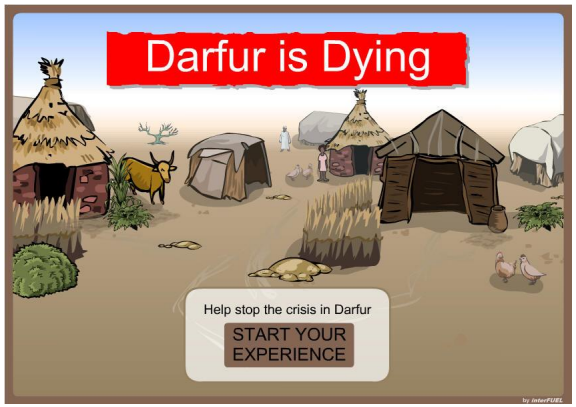
2

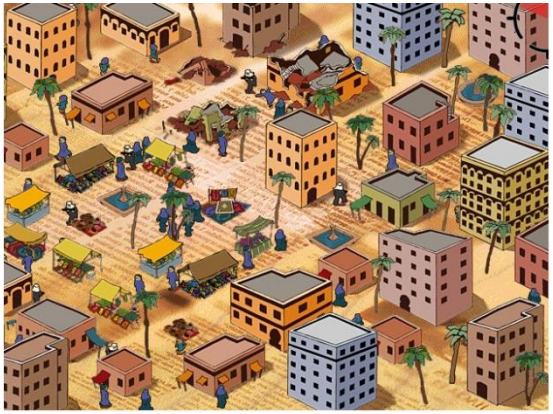
Unwinnable by Design: No Happy Ending

http://playingthecanon.files.wordpress.com/2012/06/shadowending.jpg

2

1. Is this something we can do in Serious Games?
2. SHOULD we?



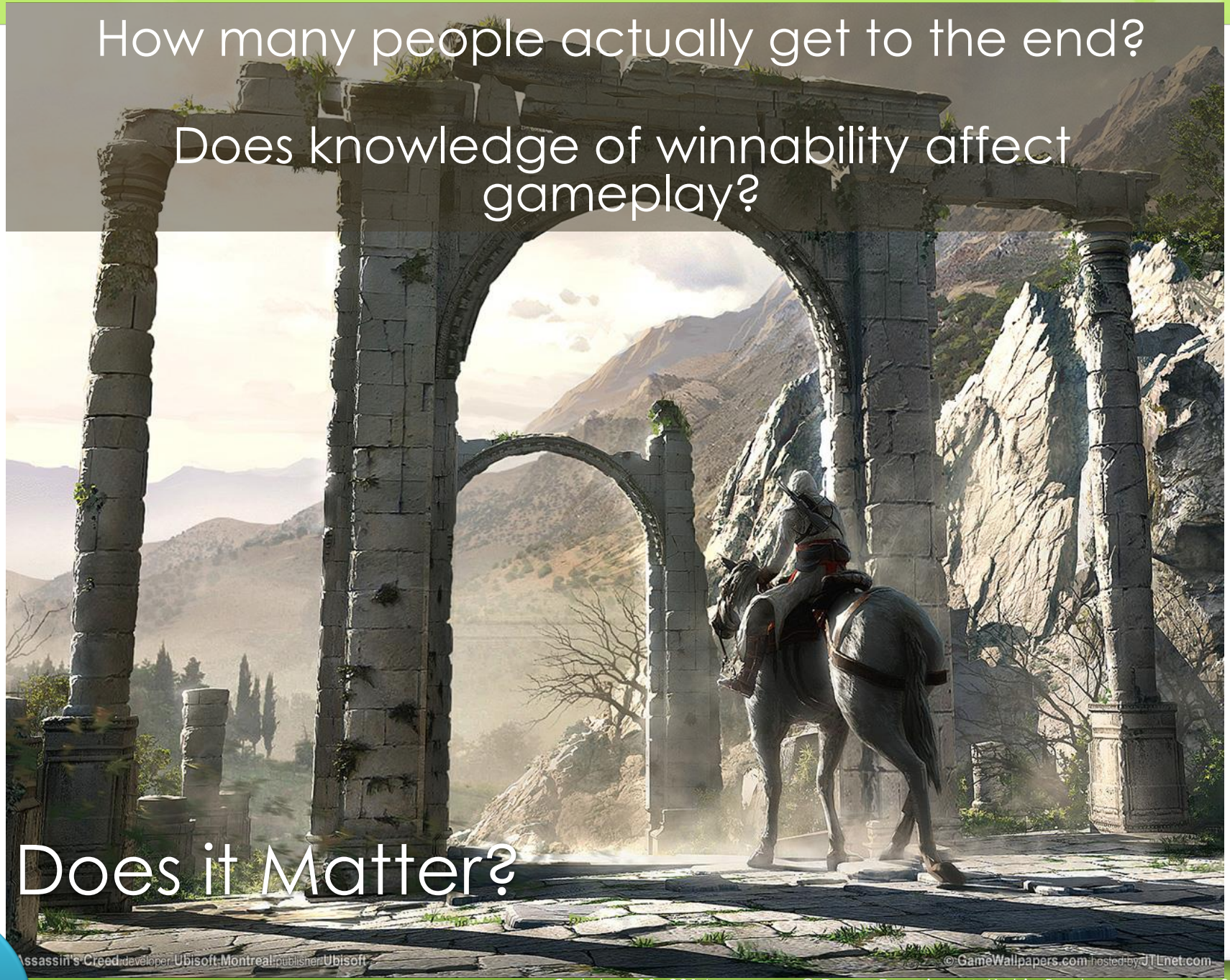


Unwinnable by Design: No Happy Ending

http://playingthecanon.files.wordpress.com/2012/06/shadowending.jpg

How many people actually get to the end?

Does knowledge of winnability affect gameplay?



Does it Matter?

Deep vs Surface Learning

Deep Approaches	Surface Approach
• Understand material for oneself	• Reproduce parts of the content
• Interacting critically	• Accepting passively
• Relating ideas to previous knowledge/experience	• Meeting assessment requirements
• Using organizing principles to integrate ideas.	• Little reflection
• Relating evidence to conclusions	• Memorizing facts and procedures routinely
• Examining the logic of the argument	• …

Defining features of approaches to learning (Adapted from Marton et al., 1984, and Entwistle & Ransden, 1983)

It's a Wonderful Life

Boy in the striped Pyjamas

Happy vs Tragic Endings

Learning from our Mistakes*

Planet of the Apes

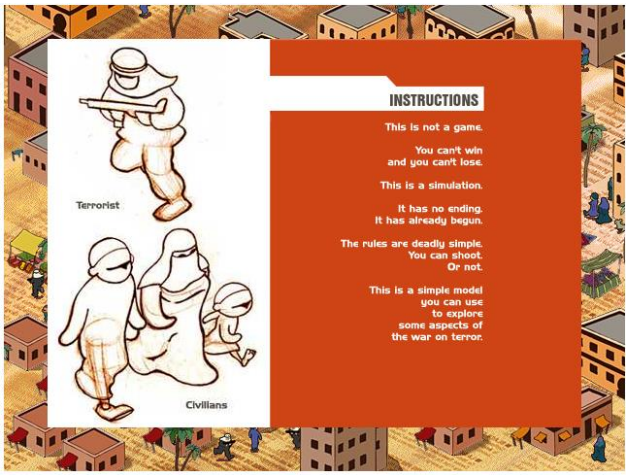
Good

Learning from our Mistakes*

4

Productive Failure

- Productive Failure (PF) better than Direct Instruction (DI) wrt:
  - conceptual understanding
  - transfer
  - procedural fluency retained
- Teachers consistently underestimate students' ability to generate Representations and Solution Methods (RSMs)
- Student ability (PSLE testing) not predictor of generative capacity (ability to generate theories)
- = Representations and Solution Methods (RSM) diversity significantly correlated with learning gains
- Productive Failure (PF) teachers learn better too.



Implications: Sept. 12

Implications

Dichotomy

5

Implications:

This Could be You

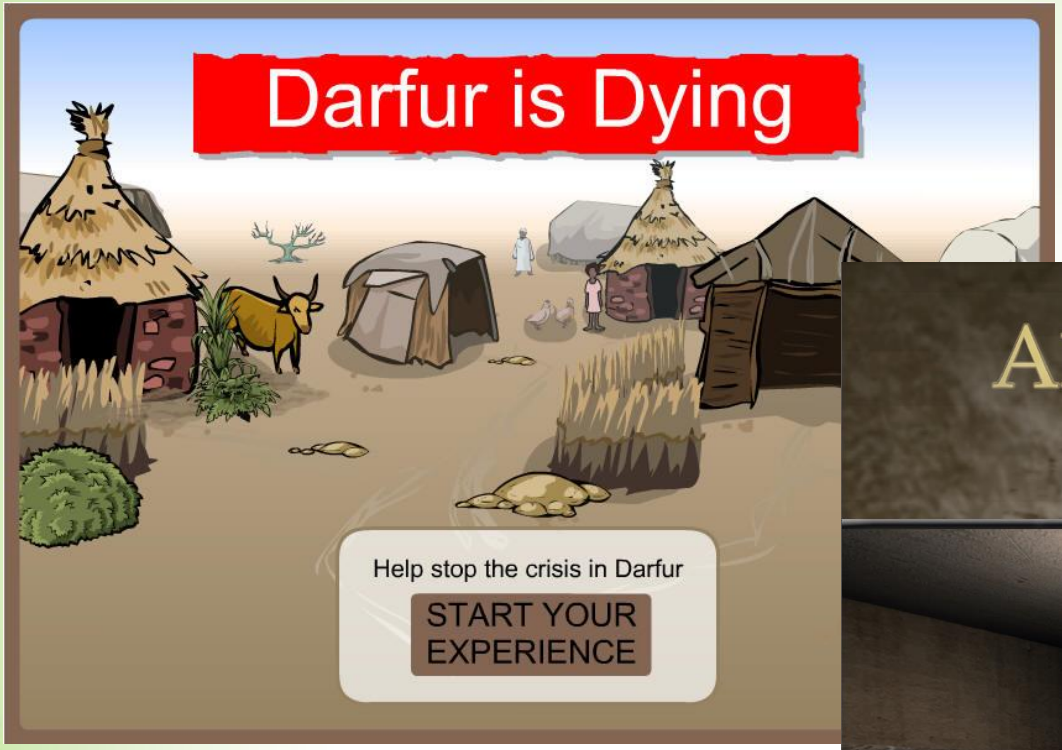
5

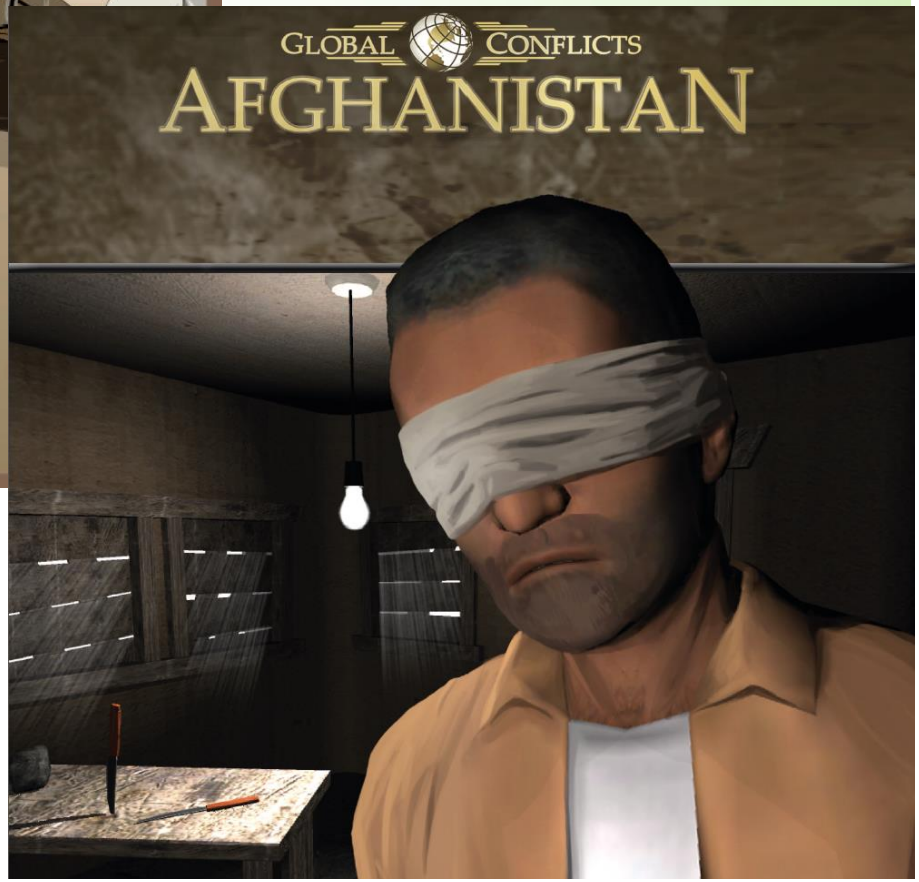
Implications

5

This Could be You

Implications





Call to Arms

5

- elevates importance of endgame
- especially if that's where the main message is delivered (endstate drives the whole design)
- endstate is *possible* in "normal" game; endstate is driven in "GYCW" game (i.e. happy endings must be prevented)

Implications: EndState

5

When could/should a game be unwinnable?

- Kinds of messages?
- Length of game?
- Differences in reflection/debriefing?
- How much of literature/film model can we use (i.e. large part of film/story designed to KEEP you from realizing the end)

Designing the Unwinnable

6

When could/should a game be unwinnable?

- Kinds of messages?
- Length of game?
- Differences in reflection/debriefing?

Designing the Unwinnable

6

- Players make up own measure of success
- How to mitigate distress of players (especially young ones)

Designing the Unwinnable

6

Formal Education

1. Focused on learner success (grades)
2. grades (high)
3. right answer
4. that there even IS an right answer
5. avoid following wrong path
6. not enough attention to process
7. no logical consequence to poor choices (except grades)

Games

1. Focused on player success (getting to end)
2. points (always?)
3. permission to proceed
4. OK to leave unanswered questions (like literature & film)
5. learn by following wrong path – sometimes for a long time
6. mostly about process
7. logical consequence to poor choices (sometimes forced)

Designing the Unwinnable

6

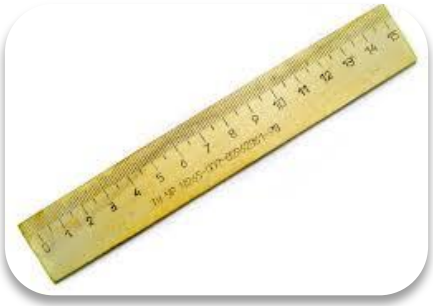
How do we measure success?

- sales / downloads?
- completion?
- reviews?
  - should people like it?
  - is it good if they don't?
- behavioural change?

Measuring the Unwinnable

6

Address Wicked Problems



Appropriate Length

Focus on the Message

Build in Reflection

Tell a Good Story

Five rules for designing unwinnable games

Take-Aways

- Another approach to design.
- One not normally addressed in design books/ courses.
- Should we establish design principles?

Just what do we learn from playing serious games?

Especially common in games for learning is the notion that participants need to be able to win the game, but is it always necessary for the player to win in order to 'get' our message? In his studies of productive failure, Kapur (2008) has suggested that failure can be important to learning. Indeed, when we think back on our most memorable learning experiences we often find that these lessons are things learned through failure rather than success. Learning through failure is an effective way to help people learn how to cope with situations where there is no clear solution (Dorner, et al., 1990), and for certain kinds of messages negative messages delivered via games you can't win may be more powerful than those you can.

This presentation explores a class of games where 'winning' doesn't look the way we expect it to look. Some games don't allow players to win at all, in which case the 'message' is effectively a cautionary tale. The authors refer to these games as "games you can't win", and they form a distinctly different approach to game design (examples include: Sweatshop, Darfur is Dying, and September 12th). This presentation will examine the philosophical background of games in education, the design of serious games, and look at both accidental and deliberately designed unwinnable games and how this relates to learning objectives.

Abstract