Jedi Mind Tricks
Cognitive Biases in Game Development

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Goals

• Summarize and give context to research
• Help you manage your own psychology
• Demystify team and market behaviors
Cognitive Biases?

• Shortcuts, Heuristics
• Irrationality
• Shared by everyone
Cognitive Biases?

WHAT DO YOU GET WHEN YOU COMBINE COGNITIVE BIAS WITH INACCURATE INFORMATION?

OUR BUSINESS STRATEGY! HAHA-HAHAHAHA!!!

I GUESS I SHOULD KEEP MY DAY JOB. GOOD LUCK WITH THAT.
Topics

• Survivorship Bias
• Impostor Syndrome
• Motivation
• Not a psychologist
• Not a researcher in this field
• This is a summary
Where to Place the Armor?
Where to Place the Armor?
The logical error of concentrating on the people or things that "survived" some process and inadvertently overlooking those that did not because of their lack of visibility.

- Wikipedia
Misconception:
You should focus on success to become successful
Colleges and conferences prefer speakers who shine as examples of making it through adversity, of struggling against the odds and winning. The problem here is that you rarely take away from these inspirational figures advice on what not to do, on what you should avoid, and that’s because they don’t know.

- David McRaney, You Are Not So Smart
• Success seems more common than it is
• No advice on what takes down a studio
• Misplaced effort when starting out
Personal Experience
Team Problems

• Overbearing founder / manager
• Too large or unclear roles
• Emotional and financial pressure
• Weak self-care
No Business Sense

• Building the wrong game
• Negative perception of business
No Parachute

• Good business sense
• Focusing too much on current game
• Keep 6 months of runway
1. Team breakup or burnout
2. Poor market fit, no business sense
3. Game fails, no backup
Survivor Issues

• Finding and optimizing the fun
• Technical and design agility
• Marketing and PR to drive discoverability
Indiepocalypse

Total monthly sales vs median monthly sales

Median sales for games released that month

Total sales for games released that month
Indipocalypse, or the birth of Triple-I?

I’ve been lucky enough to watch the games industry ebb and flow through a few different cycles now, and it’s clear we’re just about to embark upon a fresh transition. This time, it’s the indie space that’s changing, but a lot of these changes mirror the various twists the industry has taken in the past. More than anything though, it resembles the change we saw when the PC/Console game business of the late 90’s became the juggernaut we now call “Triple A Development” and in the process crushed everything else in sight.

There’s a lot of suggestions that we may be headed towards an “Indie Extinction Event” as the number of titles from known indie developers that fail to find their market increases. There was a time when simply getting on Steam was enough—but with the opening up of the Steam marketplace, that’s stopped being true.
The 5 Myths of the Indiepocalypse

by Ryan Clark on 09/08/15 01:36:00 pm

The following blog post, unless otherwise noted, was written by a member of Gamasutra’s community. The thoughts and opinions expressed are those of the writer and not Gamasutra or its parent company.

The hot topic for independent developers these days is the so-called “Indiepocalypse”. It’s the notion that indies are going to have an increasingly difficult time making a living now that mobile and Steam are both “flooded” with games. Indiepocalypse posts tend to focus on 5 key ideas:

1. There is too much competition, especially now that so many games launch on Steam each week.
2. Various charts are showing bad things, such as revenue per game declining.
3. The App Store is a wasteland. Steam will now become a wasteland.
4. A few high profile indie games have had weaker-than-expected launches lately. Surely this means that the apocalypse is upon us?
5. Triple-A independent games are going to force indie budgets to rise inexorably, mirroring what happened with AAA.

I contend that the “Indiepocalypse” is a myth, and that these 5 ideas are misleading in subtle ways. I will respond to each of them below.

1. Too Much Competition

The advent of Steam Greenlight and the subsequent “opening of the floodgates” has scared many independent developers. If you were able to get your games onto Steam pre-Greenlight, why would you want Greenlight to come along and increase the total number of your competitors? Surely this is bad...
Survivorship Bias

• Survivors perpetrated a myth
• Dead studios were invisible
• More failures today, and more visible
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<th>GAME</th>
<th>RELEASE DATE</th>
<th>PRICE</th>
<th>SCORE RANK (USERSCORE / METASCORE)</th>
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• Find people that did everything right, and still failed
• What could they have done to survive?
What is Luck?

Normal, Bell-shaped Curve

- $\sigma$ marks points where certain percentages occur:
  - $-4\sigma$: 0.13%
  - $-3\sigma$: 2.14%
  - $-2\sigma$: 13.59%
  - $-1\sigma$: 34.13%
  - $0$: 34.13%
  - $+1\sigma$: 13.59%
  - $+2\sigma$: 2.14%
  - $+3\sigma$: 0.13%
  - $+4\sigma$: 0.13%
“Luck is a multiplier on your efforts, it should not be the thing that makes or breaks your success.”

- Alexander Bruce
"According to psychologist Richard Wiseman, luck – bad or good – is just what you call the results of a human being consciously interacting with chance, and some people are better at interacting with chance than others."

- David McRaney, *You Are Not So Smart*
Unlucky People
Lucky People
Normal, Bell-shaped Curve
Lucky Strategy

• Keep taking risks
• Accept manageable damage
• Avoid catastrophe every step of the way
Survivorship Bias

• “Just looking at the successful people was making me miss out on half the story.”

- Alexander Bruce
• Survivorship Bias is about ignoring failures because they aren’t visible

• Game development is an industry where this bias is pervasive

• Luck is your interaction with chance, you have some control
Leadership

I HAVE NO IDEA WHAT I'M DOING
A psychological phenomenon in which people are unable to internalize their accomplishments. Despite external evidence of their competence, those with the syndrome remain convinced that they are frauds and do not deserve the success they have achieved.

- Wikipedia
Symptoms

• Feeling like a fake
• Attributing success to luck
• Discounting success
Description

• Affects high-achievement, high-success people
• Not a medical condition, not low self-esteem
• Recurring self-doubt
Jedi Mind Tricks
Cognitive Biases in Game Development

Daniel Menard
IMPOSTOR
Co-founder and CEO
Double Stallion Games
Women and Minorities
Dunning-Kruger Effect

The graph illustrates the perceived ability and actual test scores across different quartiles. The x-axis represents the quartiles: Bottom, 2nd, 3rd, and Top, while the y-axis shows the percentiles. The black squares represent actual test scores, the black triangles represent perceived test scores, and the black dots represent perceived ability. The graph shows a discrepancy where those in the lower quartiles perceive themselves as having higher abilities than their actual test scores.
People least skilled have large blind spots
People most skilled don’t give themselves credit
Dunning-Kruger Effect

Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments

• Know it exists
Impostor syndrome

From Wikipedia, the free encyclopedia

For the belief that a familiar person has been replaced by an impostor, see Capgras delusion.

The impostor syndrome (also spelled imposter syndrome), sometimes called impostor phenomenon or fraud syndrome, is a psychological phenomenon in which people are unable to accept their competence, those with the syndrome remain convinced that they are frauds and do not deserve the success they have achieved. Proof of success is dismissed as luck, timing, or as a result of helping others rather than they believe themselves to be.

Contents [hide]
1 Background
2 Prevalence
3 Demographics
4 Therapy
5 See also
6 References
7 External links

Background [edit]

The term "impostor syndrome" first appeared in an article written by Pauline R. Clance and Suzanne A. Imes who observed many high-achieving women tended to believe they were not as capable as they were perceived to be. The impostor syndrome tends to be studied as a reaction to certain stimuli and events. It is not perceived to be a mental disorder among people, but it has been the topic of research for many years. The term has been used to describe feelings of inadequacy in a variety of settings, including academic, professional, and personal. Under this pretense, it is a response, experienced by many different people, to situations that, despite feeling threatened, experience them more intensely than most, and can be identified through the use of personality scales, evidence does not support impostor syndrome to be a distinct personality.
Dealing With It

• Know it exists
• Get a support group
You Are Not Alone

THE FIRST RULE OF FIGHT CLUB IS YOU DO NOT TALK ABOUT FIGHT CLUB.
Dealing With It

• Know it exists
• Get a support group
• Challenge automatic thoughts
The Struggle

• “I’m in over my head”
• “I’m not qualified for this”
• “Where did I go wrong?”
Newsflash

• Building a studio or leading a team is hard
• You learn only by doing it
• For leaders, the mean score is 22/100
The Hero versus the Coward
Managing Your Psychology

• Personal challenge
• Difficult skill to learn
• Focus on the road, not the wall
Motivation

MOTIVATION

Chuck Norris doesn't need motivation, motivation needs Chuck Norris.
Eternal Silence
Eternal Silence
Eternal Silence is a science fiction mod that pits two capital ships against each other in a seamless blend of space warfare and tactical infantry combat. Pilots coordinate strikes with invading infantry in order to take down the behemoth capital ships from both the inside and out.

User reviews: Very Positive (216 reviews)
Release Date: 1 Mar, 2007

Popular user-defined tags for this product:
- Action
- Mod
- Free to Play
- FPS
- Space
Common Advice

• Small Projects
• Break everything down
• Give yourself rewards
Clear Vision

NGM Destroyer

NGM Destroyer
Task Breakdown

Game

Art

Sound

UI

Gameplay

Combat System

Player Progression

Levels

Level 1

Level 2

Level 3

...
Motivation

• If you reward something, you get more of it
• If you punish something, you get less of it
Scientific Research
Scientific Research

- As expected
- Larger reward = better performance
• Rudimentary cognitive skill or creativity
• Larger reward = poorer performance
Traditional carrot and stick motivation doesn’t work
Motivation

• Extrinsic Motivation

• Intrinsic Motivation
Why Extrinsic Doesn’t Work

• It leads to tunnel vision on the reward.
• It stifles creativity.
• It turns it into work, removing intrinsic motivation.
Rewards for Drawing
Rewards for Drawing

Percentage of time spent drawing

- Expected reward
- No reward
- Surprise reward
Intrinsic Motivation
Motivation Drives

AUTONOMY

MASTERY

PURPOSE
Autonomy and Play

• Control over your work
• Freedom to play at work
• Trust your team
• Allow for play
• Get out of their way
• Foster trust
• Guide, don’t dictate
• Creative days
Mastery and Potential

• Getting better - Flow
• Chasing the impossible
• Enjoying the journey
Build Mastery

• Create a sense of potential
• Escalating challenges for your team
• Personal growth
• Move fast and break things
Purpose

• Reason you do what you do
• Big Hairy Audacious Goal
• Making the world a better place
Purpose

• Apple: “To make a contribution to the world by making tools for the mind that advance humankind.”

• Riot Games: “To be the most player-focused game company in the world.”

• Blizzard: “Dedicated to creating the most epic entertainment experiences...ever.”
• Answer “Why?”
• Create your vision and share it
• Must not let profit be your purpose
Build Purpose

1. Put Players First
   Always have players in mind when designing or building games. Remember that they give you your paycheck at the end of the day. Strive to exceed their expectations and deliver on the promises we make. Know your market, learn what makes them tick. Deliver the best quality product possible through testing and QA.

2. Be a Professional
   Own your work from start to finish. Be responsible for your part and the project as a whole. We aren't doing game development as a hobby anymore, and we have responsibilities to our customers. Remember that Less is More; Not having a feature is better than doing it badly.

3. Keep Work-Life Balance
   Remember to go home and get refreshed. Crunch time is the result of poor planning, and we must minimize it. Do what it takes to stay happy, creative and productive. Always bring your best to work.

4. Leave Your Ego at the Door
   Do what is best for the company and the team. Take feedback as an invitation to learn and improve. Be honest with the work of others, good and bad, but always be constructive. Acknowledge your strengths and weaknesses and know that everyone here is trying to make our games better.

5. Be Constantly Learning
• Don’t confuse milestones and tasks with total motivation

• Avoid using rewards as motivation, use surprises instead

• Allow your team to have autonomy, mastery and purpose
Conclusion

• Survivorship Bias
  • Indiegopocalypse
  • Luck

• Impostor Syndrome

• Motivation
References: Survivorship Bias

- David McRaney, You Are Not So Smart: Survivorship Bias
- Alexander Bruce, Antichamber: An Overnight Success, Seven Years In The Making
- Rami Ismail, How to Survive Your First Indie Game For Dummies
- Nicholas Laborde, The Negative Perception of Business in Indie Games
- Roger Paffrath, What NOT to do when starting an indie developer
• Morgan Jaffit, *Indipocalypse, or the birth of Triple-I?*
• Ryan Clark, *The 5 Myths of the Indiepocalypse*
• Matthew Handrahan, *tinyBuild: Indiepocalypse? What Indiepocalypse?*
• Sergey Galyonkin, *#Indiepocalypse is nigh (or not)*
References: Impostor Syndrome

• Tanya X. Short, *Overcoming Impostor’s Syndrome*

• Caltech Counseling: Impostor Syndrome

• Tal Yarkoni, *What the Dunning-Kruger Effect Is and Isn’t*

• Kyle Eschenroeder, *21 Proven Ways to Overcome Impostor Syndrome*

• Richard Moss, *Impostor Syndrome: Game Developers Who Feel Like Frauds*
References: Motivation

• RSA Animate: Drive

• Dr Jemery Dean, PsyBlog: How Rewards Can Backfire and Reduce Motivation

• Lindsay McGregor and Neel Doshi, Amazon’s No Outlier: The Science Behind Broken Work Cultures
Recommended Reading

- **You Are Not So Smart** by David McRaney
  - The archives of David McRaney’s blog on self-delusion are well worth picking through. —ANDREW SULLIVAN
  - Why You Have Too Many Friends on Facebook
  - Why Your Memory Is Mostly Fiction
  - And 65 Other Ways You’re Deluding Yourself

- **Thinking, Fast and Slow** by Daniel Kahneman
  - Winner of the Nobel Prize in Economics

- **Drive** by Daniel H. Pink
  - New York Times Bestseller
  - Provocative and fascinating —MALCOLM GLADWELL
  - The Surprising Truth About What Motivates Us
Recommended Reading

The Hard Thing About Hard Things
Ben Horowitz
Thank You!

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