

# 50.033

Foundations of  
**Game Design**  
and Development

# 100 RULES OF GAME MECHANICS

Current video gaming trends &  
popular rules of video game mechanics

# MAJOR PLAYERS

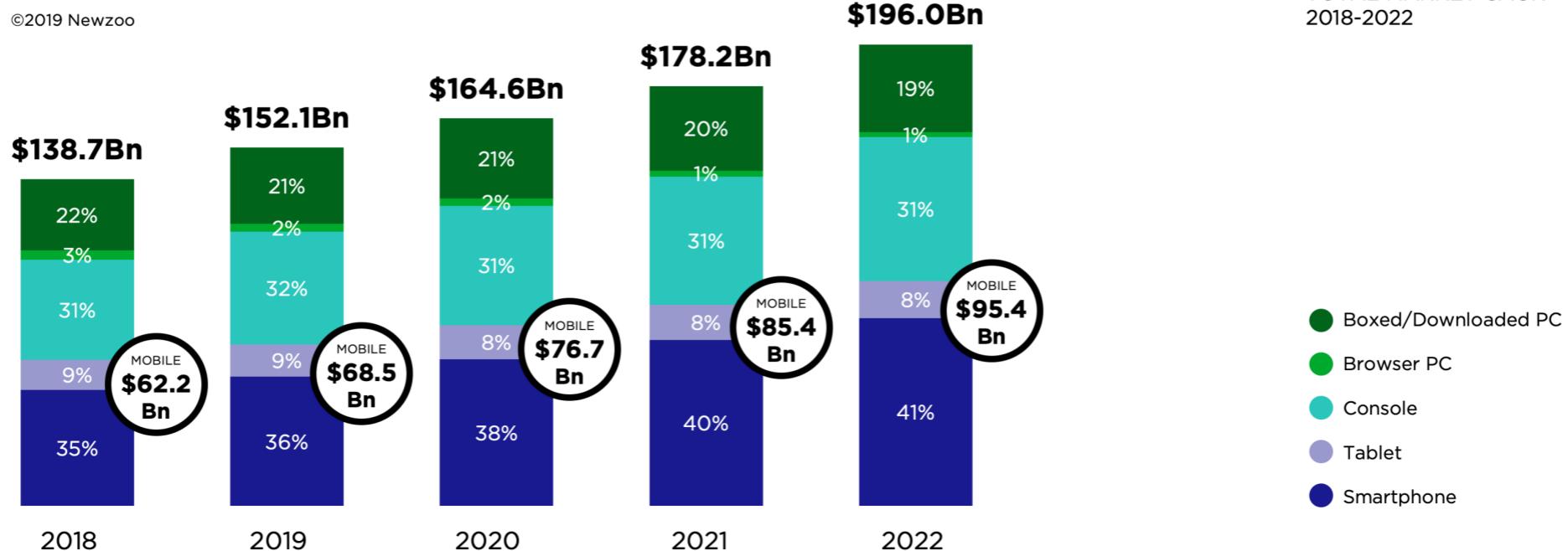
- Gaming industry: > 150 billion USD
- Who?
  - Sony Interactive Entertainment, Microsoft Studios, Nintendo, Activision Blizzard, Tencent, Electronic Arts, King, Ubisoft, etc



# 2018-2022 GLOBAL GAMES MARKET

FORECAST PER SEGMENT TOWARD 2022

©2019 Newzoo



**+9.0%**

TOTAL MARKET CAGR  
2018-2022

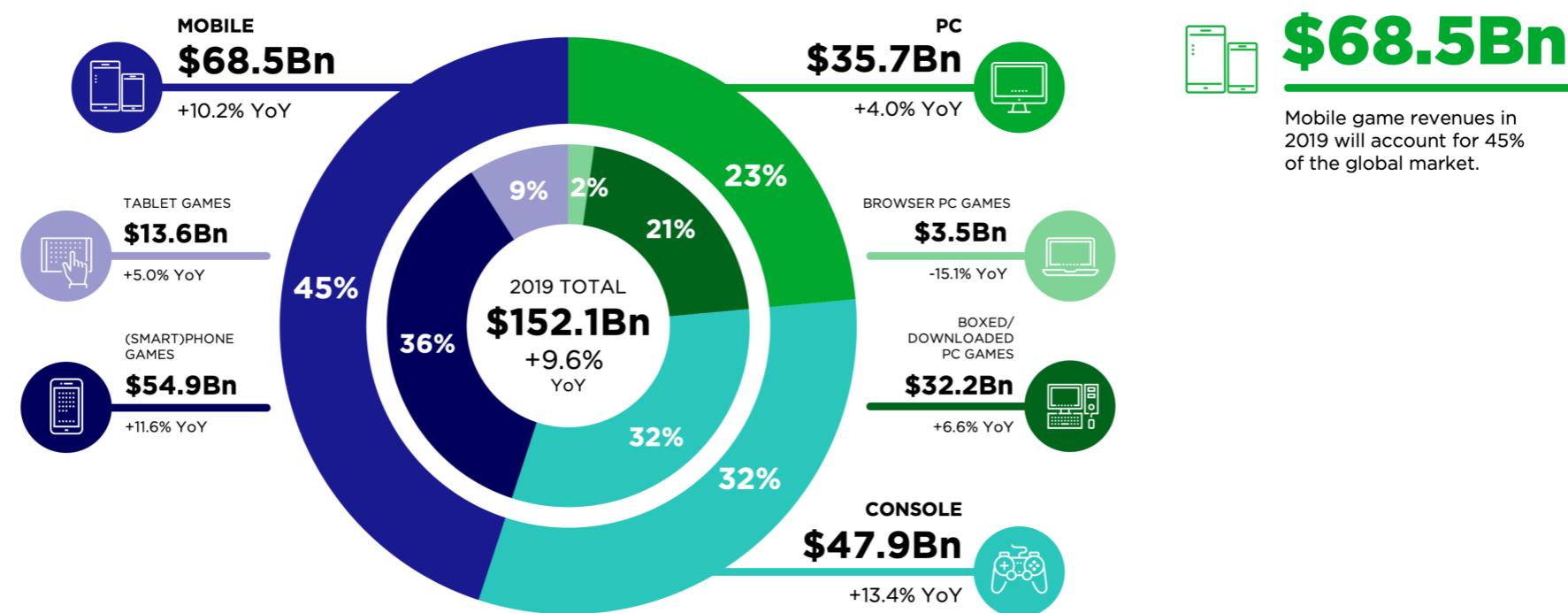
- Boxed/Downloaded PC
- Browser PC
- Console
- Tablet
- Smartphone

Source: ©Newzoo | 2019 Global Games Market Report  
[newzoo.com/globalgamesreport](http://newzoo.com/globalgamesreport)



## 2019 GLOBAL GAMES MARKET

PER DEVICE & SEGMENT WITH YEAR-ON-YEAR GROWTH RATES



Source: ©Newzoo | 2019 Global Games Market Report  
[newzoo.com/globalgamesreport](http://newzoo.com/globalgamesreport)

# 2018 TOP GAMES



- a.k.a: PUBG
- Publisher: PUBG Corp
- Genre: multiplayer, battle royale game
- loot items for survival, get into safe zones in time
- More realistic looking than Fortnite
- third highest-grossing game of all time on Steam (> 712 M USD, 2017)

# 2018 TOP GAMES

- Single / Co-op, sandbox (open world)
- Genre: survival, developed by Epic Games
- Explore, scavenge items, exploration, craft weapons, build fortified structures, and fight waves of encroaching monsters (fantasy elements, colorful)
- \$126 M USD (Feb 2018) Fortnite BR surpasses PUBG in monthly revenue



- Battle royale version:
  - Last man standing (online multiplayer),
  - up to 100 players in a map, shrinking safe zone
  - Free, make sales from character skins and emotes

# 2018 TOP GAMES



- choose hero (carry, support, tank, nuker, pusher, jungler, disabler)
- creep, level up, buy items, kill opponent heroes, destroy throne
- also high learning curve
- Genre: multiplayer online battle arena (MOBA) by Valve Corp
- free, similar to LoL but no runes etc
- 5 v 5 gameplay

# 2018 TOP GAMES

- Genre: MOBA
- Publisher: Riot Games/Tencent
- free, but can buy stuff to ++ stats
- 5 v 5, choose champion (support, marksman, midlane, tanks, jungler, fighter/off-tank)
- creep, level up, buy items, kill enemy champions
- destroy nexus
- high learning curve
- biggest game in the world by revenue (2.1B in 2017)



# 2019 TOP GAMES

- ‘The Fortnite Effect’
- Fortnite Battle-Royale on mobile
- Free-to-play, anytime anywhere



# 2019 TOP GAMES



- a free-to-play battle royale game
- Developed by Respawn Entertainment and published by EA
- Mechanics from Titanfall

# 2019 GAMING TRENDS

- ‘The Fortnite Effect’ : **Fortnite is completely free**, but it sells in-game packs that makes your character looks “Cooler”. However they don’t sell things that upgrade skills
- APAC players are increasing, China being the one stand-out consumer
- Mobile games account for 50% of the industry. Phones are now able to support sophisticated games
- AR: the ability to superimpose CGI onto screens
- Indie games can gain sudden popularity fast due to platforms: Apple Arcade, Android and iOS stores, using social media to promote, etc

# WEB BROWSER GAMES

- Web browser games also have recently gained popularity
- There's casual games: to *relax, but also fast-paced ones*
- [krunker.io](#) — a free browser based multiplayer first-person shooter video game
- <http://slither.io> — another free browser multiplayer game
  - Player controls a “worm”,
  - Consumes multicolored pellets, and grow

# 2020 GAMING TRENDS?

- AR/VR?
- Web Browser?
- Your homework, please head to edimension to find the handout
- Important to do your research before making any games!

# WHY SO POPULAR?

- 100 rules of game mechanics
- Based on :The 400 Projects, GDC 2006
- Worked at Lucasfilm games since 1980
- Aimed to generalize 400 universal rules for most games
- They managed to produce 100 rules in 5 years
- Stopped the project after becoming the chief game designer at Google
- The rules: [http://www.finitearts.com/Storage/400\\_Project\\_Master\\_Rule\\_List\\_032306.zip](http://www.finitearts.com/Storage/400_Project_Master_Rule_List_032306.zip)

# 100 RULES OF GAME MECHANICS

## ● What is it for?

- Learn from past experience, no need to plan from scratch
  - Avoid previously explored problem, save time in making better decision
  - Conceptualize problems
  - Ultimately, make a fun and engaging game
- 
- The rules: [http://www.finitearts.com/Storage/400\\_Project\\_Master\\_Rule\\_List\\_032306.zip](http://www.finitearts.com/Storage/400_Project_Master_Rule_List_032306.zip)

# RULE #47 : GAME PLAY COMES FIRST

- SUPER important
  - In order to be fun, games have to be **playable**
- Definition:
  - To emphasize game play than other elements, like story, special effects, or fidelity to license.
  - Game has to work properly. Bugs aren't fun.

# RULE #31 :

## USE COMMON SENSE WHEN APPLYING RULES

- Goes without saying
- Definition:
  - The Uber-trump.
  - Any rule, carried to **extremes**, can become **non-functional**.
  - It's impossible to consider every possible situation when drafting rules and identifying trumps, so don't follow any rule blindly.

50.033

# RULE #31 : USE COMMON SENSE WHEN APPLYING RULES



## Castlevania II's Magic Tornado

Who is Deborah Cliff, and why are we headbutting her? She's not a person, but a place -- an anonymous (as in, no sign pointing to it whatsoever) dead end on the other side of the game.



So you hit your head on the cliff and walk through the big hole to the final dungeon, right? Nope. There's no headbutt button in this game. What you need to do is kneel down on the top platform and stay that way until a tornado scoops you up and whisk you away to the final area.

# RULE #1 : FIGHT PLAYER FATIGUE

- VERY important 
- Definition:
  - Games are a **challenge** and playing takes **effort** — actively work to keep the player involved, and
  - make sure the **appeal of your game always exceeds its difficulty.**
  - Nobody wants to play a game that's too hard or too easy (for the appropriate age group, of course)

# RULE #50 & #51 : AS SIMPLE AS POSSIBLE

- Definition:

- "Everything should be as simple as possible, but no simpler"
- Simple gameplay, simple interface, **intuitive**
- When trying to reach a wide audience, the simpler the interface the better.

- Addictive games are almost, always simple



# RULE #50 & #51 : AS SIMPLE AS POSSIBLE



# RULE #50 & #51 : AS SIMPLE AS POSSIBLE

- Example: Overcooked (2018 Nintendo Switch game)



# RULE #6 : PROVIDE CLEAR SHORT-TERM GOALS

- Definition:



- Always make it **clear** to the player what their short-term objectives are. This can be done **explicitly** by telling them directly, or **implicitly** by leading them towards those goals through environmental cues. This **avoids the frustration** of uncertainty and **gives players confidence** that they are making forward progress

- Example:

- Quests board and maps

# RULE #61 :

## PLAYERS SHOULD SEE THEIR GOAL BEFORE THEY ACHIEVE IT

- Definition:

- The "No Backward Puzzles" rule. The **satisfaction** of achieving a goal is magnified when the goal has been **clear** (and/or literally visible) for some time. Solving a puzzle or surmounting an obstacle without even knowing you were doing it, or without knowing why, robs the player of satisfaction.

- Example:

- Quests board and maps

50.033

# RULE #6 & #61



50.033

# RULE #6 & #61



# RULE #59 : MAKE THE PLAYER FEEL SMART

- Definition:

- **Provide** avenues for the player to feel **clever**, and conversely avoid situations that will make the player feel stupid.



# RULE #59 : MAKE THE PLAYER FEEL SMART

- Example: Assassin's creed eagle strike



# RULE #69 : PROVIDE A REACTION TO EVERY PLAYER ACTION

- Definition:

- Ideally, every action a player can take should have some sort of **feedback**, visual, audible, or both.



# RULE #46 :

## RAISE THE EMOTIONAL STAKES TO MAXIMIZE PLAYER INVOLVEMENT



### ● Definition:

- A meta-rule with many more specific examples, this should be the **underlying rule** behind many design decisions about story, characters, and theme, as well as choices of gameplay
- Make players have a **particular emotional interest** in the **outcome**
- Especially apparent in games that allow you to do things that aren't allowed in real life

# RULE #46 :

## RAISE THE EMOTIONAL STAKES TO MAXIMIZE PLAYER INVOLVEMENT



# RULE #62 : MAKE CHALLENGES REQUIRE SKILL

- Definition:

- A game should be **difficult enough** (for the directed age group) to avoid player fatigue
- Unless you're making gambling games
- But of course, not *impossibly* hard

- Examples:

- Well, almost all games require skill / challenging enough
- Otherwise you won't even hear about it

# RULE #55 :

## MAKE THE GAME APPEAR FAIR TO THE PLAYER

### ● Definition:



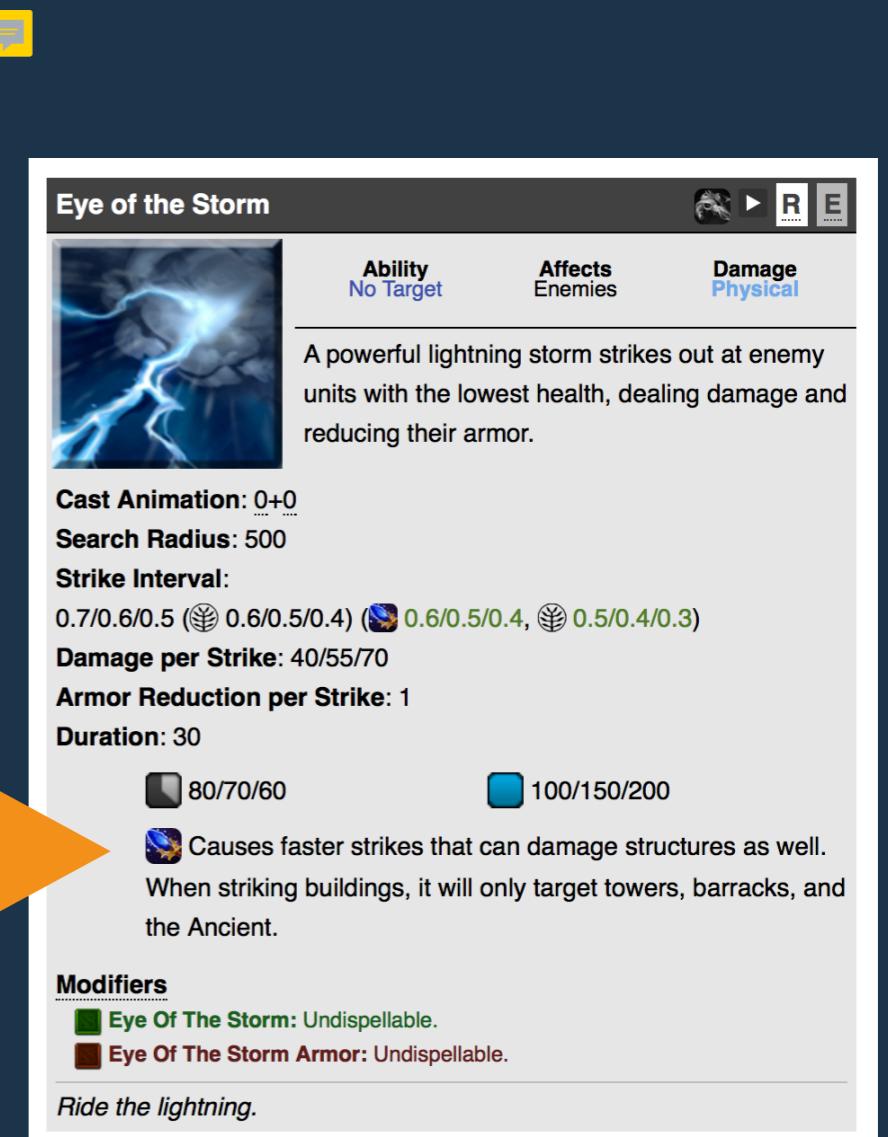
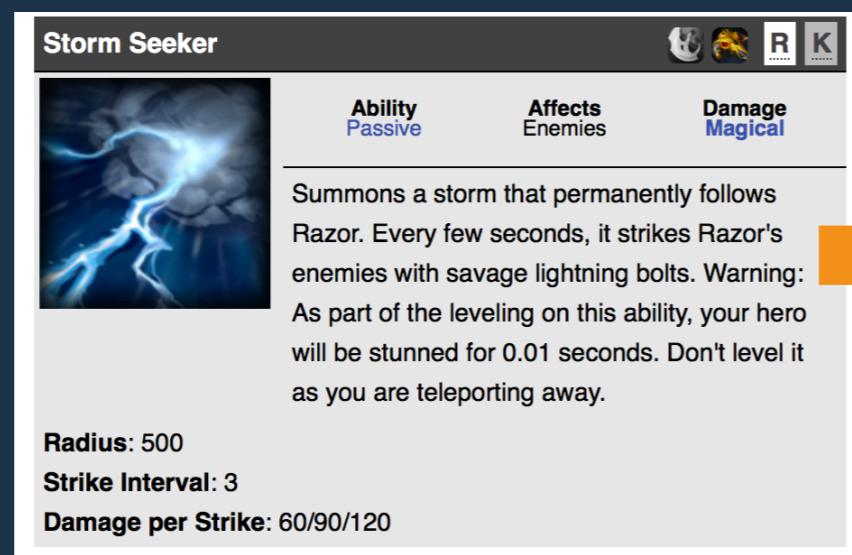
- Computer-controlled opponents **should not appear** to be **taking advantage** of information that would not be available to a human in the same position.
- In multiplayer games, opponents should not have advantages based on their hardware or bandwidth.
- Basically, don't OP (overpowered)
- Indicate monster level difficulties

# RULE #55 :

## MAKE THE GAME APPEAR FAIR TO THE PLAYER

- Example:

- Closure of Diablo III Auction House
- DotA hero patches to avoid OP, eg: LR's ulti



# RULE #16 : DISTRIBUTE GAME ASSETS ASYMMETRICALLY

- Definition:

- When there are objects or experiences the player can encounter in a game, place them **asymmetrically**, both **spatially in the sense of clumping some together and spreading others thinly**, and temporally in the sense of having some be **common**, some **uncommon**, and some **rare** over time. Of course, particularly useful or powerful items are good candidates to be the rarest.

- Example:

- Hunger games
- Explicitly state: cheap, good, great, legendary items

# RULE #16 : DISTRIBUTE GAME ASSETS ASYMMETRICALLY



# RULE #11 : EMPHASIZE EXPLORATION AND DISCOVERY



- Definition:

- Players like to **figure out** the territory of your game — it's a basic human impulse to investigate the unknown — so let 'em do it.

- Example:

- Basic mechanism for **RPG** games: explore the world
- Maps are often incomplete in the beginning

50.033

# RULE #11 : EMPHASIZE EXPLORATION AND DISCOVERY



50.033

# RULE #11 : EMPHASIZE EXPLORATION AND DISCOVERY



# RULE #22 : ADD A SMALL AMOUNT OF RANDOMNESS TO AI CALCULATIONS

- Definition:

- A little randomness can make a **dumb AI look very smart**. If an enemy responds exactly the same every time, they'll feel robotic and predictable. But just 5% variation can shock a player out of complacency and make an opponent seem alive. Sometimes the easiest way is to add plus or minus a few percent to a basic calculation of distance or direction. This is particularly effective for animal behavior.

# RULE #5 MAKE SUBGAMES

- Definition:

- Players want to **participate** in the course they take through your game -- so give them plenty of **opportunities** to voluntarily take up **ancillary** challenges
- Basically make side quests in addition to the main goal

- Example:

- Any RPG side quests / side mission / events
- Diablo III: Jar of Souls (Act I)



## RULE #52 MAKE YOUR GAME FAMILIAR, YET DIFFERENT

- This can potentially make your life easier for the final project
- Definition:
  - Another "Make it Fun" specific rule. All successful games have a **mix** of some **familiar** elements and **some fresh or unique variations**. Often the big hits use familiar gameplay but vary the story/theme, or vice versa - doing both at once tends to lose audience share.
- Example:
  - Call of Duty vs Battlefield, DotA vs LoL, Fortnite vs UnnamedPlayers' Battleground, Overcooked vs Cooking Mama, Candy Crush vs Bejewelled, Dead Island vs Left 4 Dead

# SUMMARY

- **Basic & meta**: must-have rules (game must work properly, challenging but appealing enough, distribute game assets asymmetrically)
- **Feedback**: clear hints and indications on the game progress (simple UI, clear goals / objectives, clear action feedback)
- **Psychological**: to keep things **interesting and balanced** (make the player feel smart, fair game, clear goals / objectives to promote the level of satisfaction, add randomness to AI, hide maps to emphasize discovery)
- **Extra**: add subgames
- There are other categories too: serious games, brainstorming, games for girls, casual games, games for non-gamers, production, level design, development, story, etc. Read more *if you have the time.*