Games and Simulation

2020-2021
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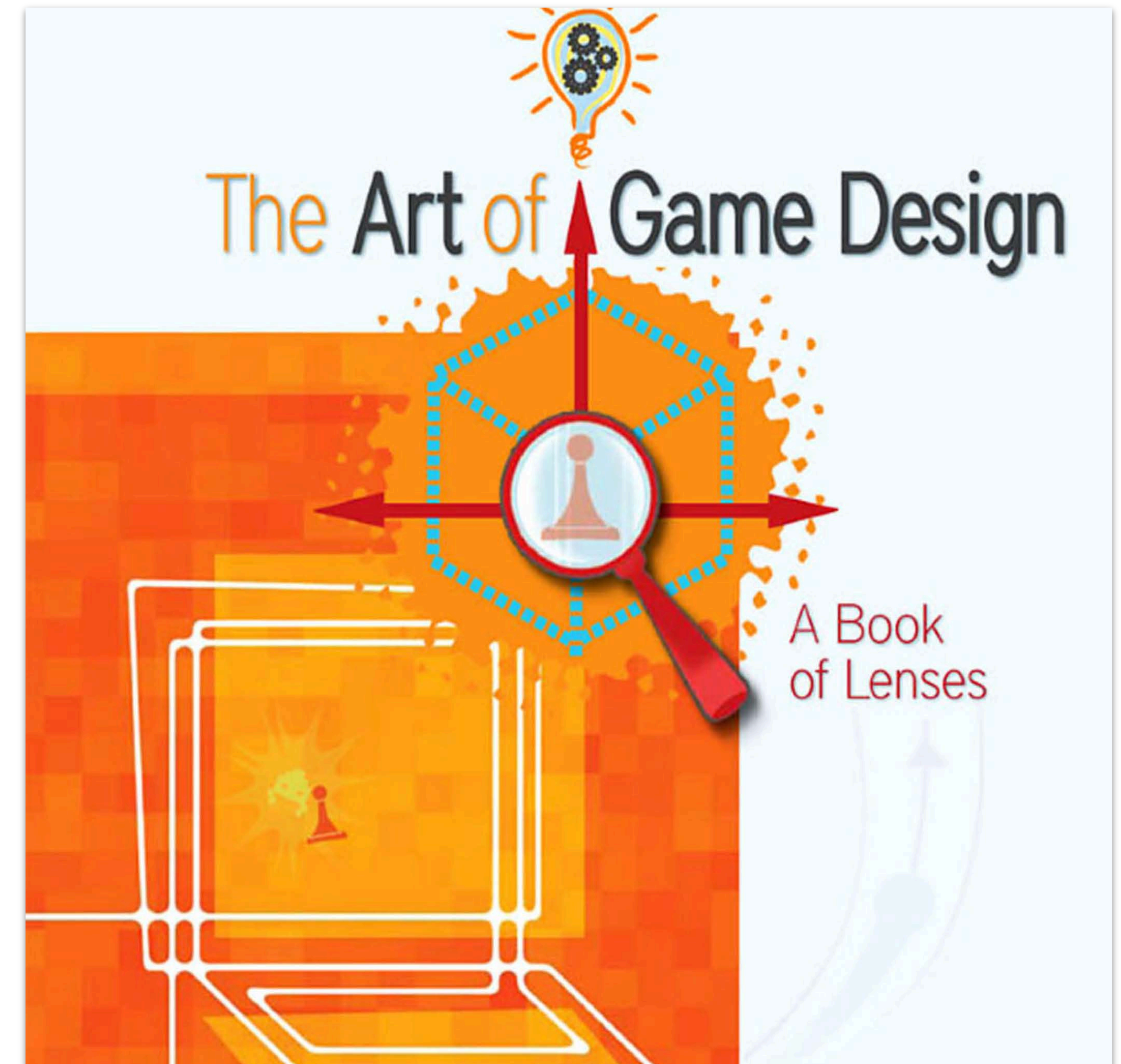SCIENCE & TECHNOLOGY

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Game Design

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References

The Art of Game Design
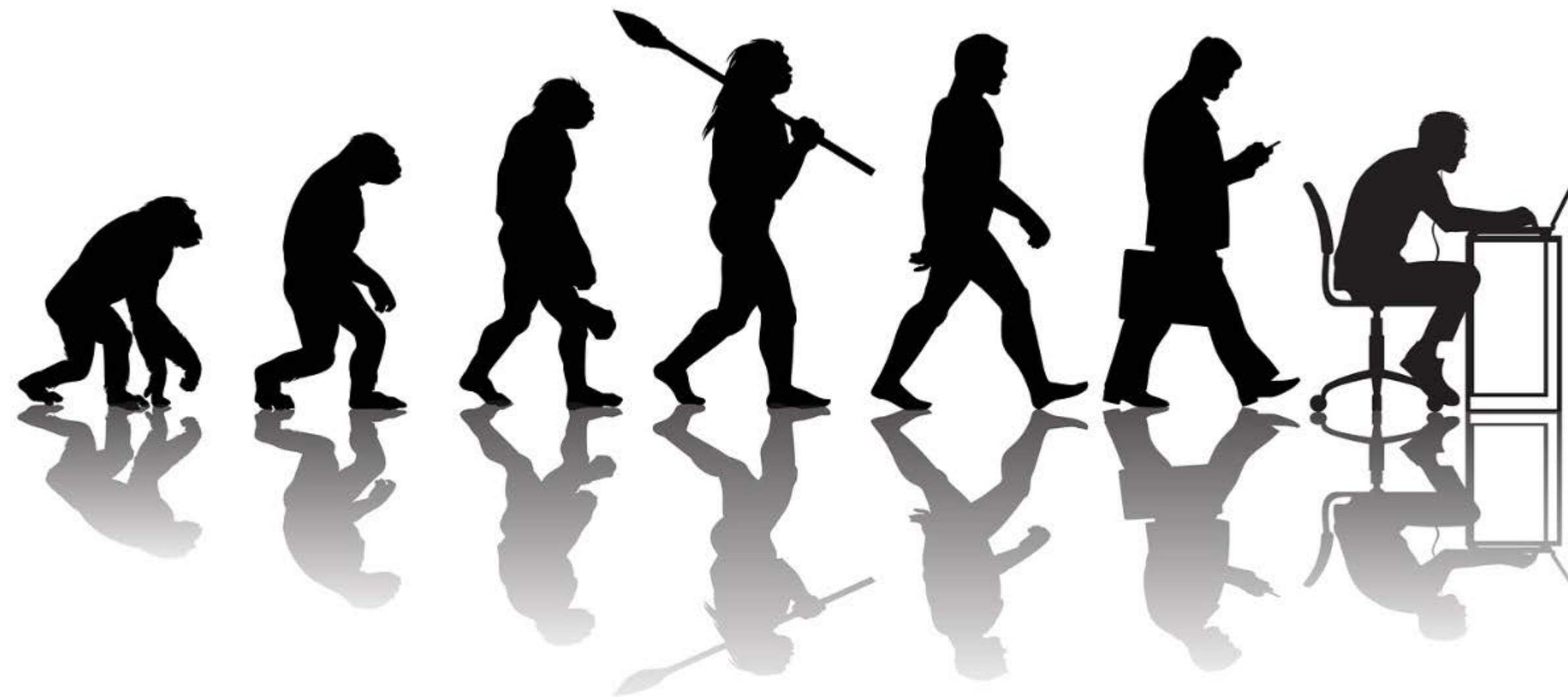
A Book of Lenses

Jesse Schell, 2008

ISBN-13:

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What is a game? (I)

"*An **interactive experience** that provides the **player** with an increasingly **challenging sequence of patterns** which he or she **learns** and eventually **masters**.*"

in Raph Koster's "A Theory of Fun for Game Design"

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What is a game? (II)

*"A game is a form of **interactive entertainment** where players must overcome **challenges**, by taking actions that are **governed by rules**, in order to meet a **victory condition**."*

in Rollings and Adams "Game Design" (2003)

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What is a game? (III)

*"**[a game is]** an interactive structure of endogenous meaning **[inside the game]** that requires players to struggle **[conflict and challenge]** towards a goal."*

Greg Costikyan

- We will be talking about:

  - Video games, computer games, electronic games, digital games

  - Arcade, console, PC, cellphone, web games

  - Entertainment games, Serious Games, Persuasive Games, Educational Games

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Game Qualities

- A game is a problem-solving activity, approached with a playful attitude:
  - Q1. Games are entered willfully
  - Q2. Games have goals
  - Q3. Games have conflict
  - Q4. Games have rules
  - Q5. Games can be won and lost
  - Q6. Games are interactive
  - Q7. Games have challenge
  - Q8. Games can create their own internal value
  - Q9. Games engage players
  - Q10. Games are closed formal systems

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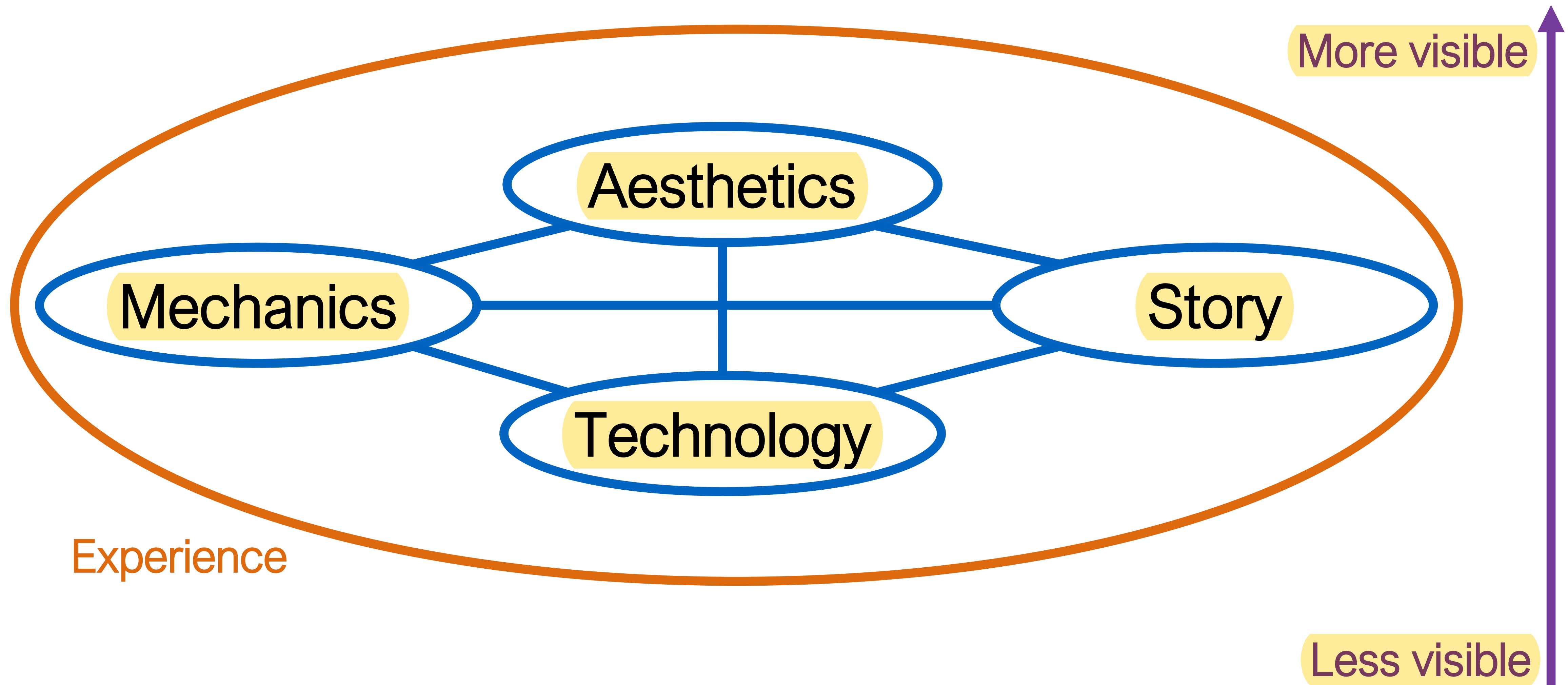NOVA SCHOOL OF SCIENCE & TECHNOLOGY

Serious Games

- Are games **just for fun**?

  - There is certainly always a component of entertainment in games…

  - …but the purpose can be different.

  - Edutainment/Game-based learning

  - Simulation Games

  - Advergames

  - Health Games / Exergames
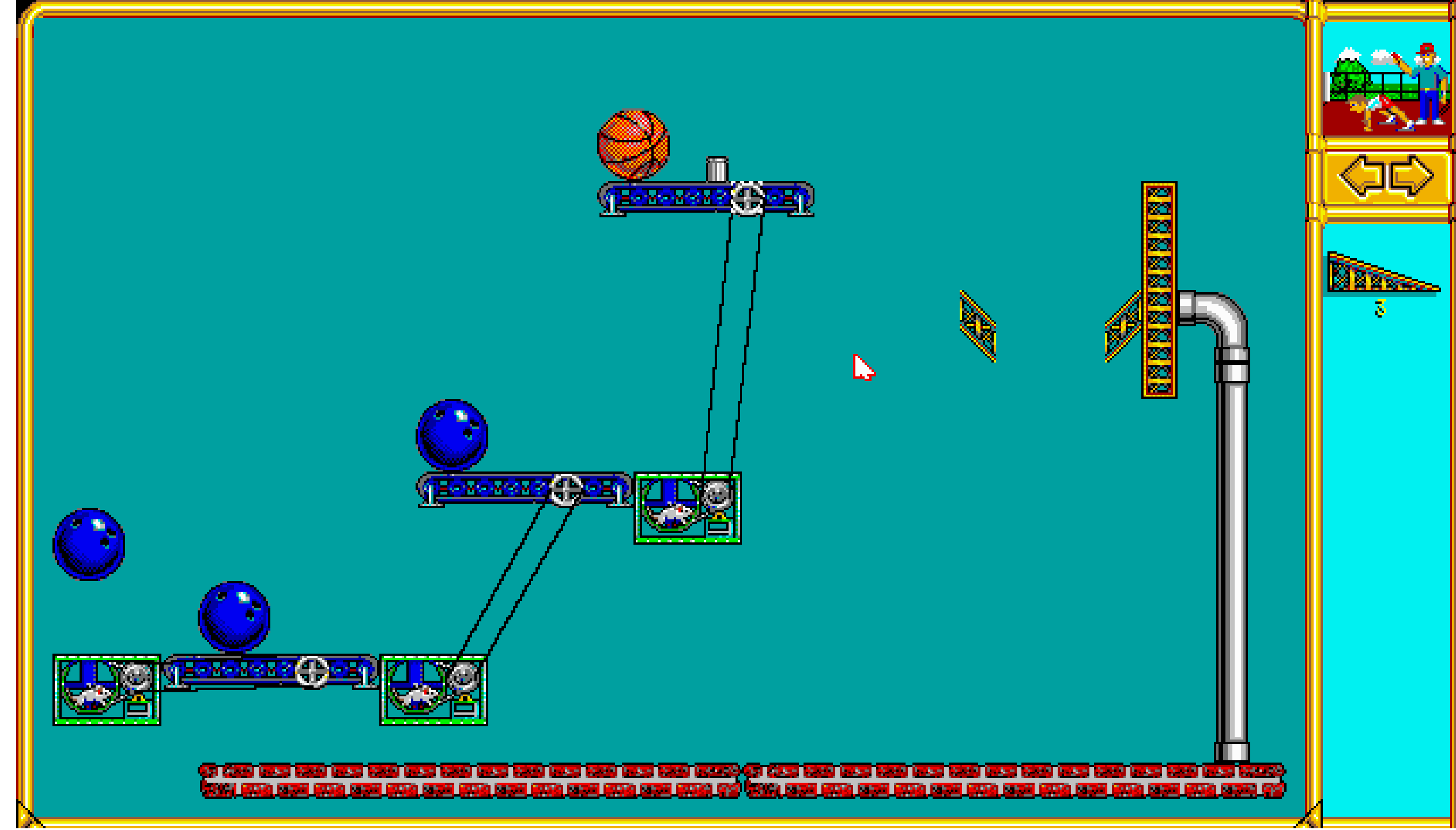
  - Persuasive Games

[VR Surgeon Simulator]

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Game elements: Elemental tetrad

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Game Elements

[The Incredible Machine,1993]

- **Mechanics**: procedures and rules of the game.

- **Story**: sequence of events that unforld your game.

- **Aesthetics**: how the game looks, sounds, smells tastes and feels.

- **Technology**: the medium in which the aesthetics take place in which the mechanics will occur and through which the story will be told.

- The final result of combining the game elements is the **experience**.

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What is a Game Design?

- *"Game design is the act of deciding what a game should be. That's it. On the surface, it sounds too simple.*

   In Jesse Schell, The Art of Game Design: A Book of Lenses (2008)

- "Good game design happens when you view your game from as many perspectives as possible.I refer to these perspectives as lenses, because each one is a way of viewing your design.The **lenses are small sets of questions** you should ask yourself about your design."

- Follow the lenses using the **Book of Lenses** app (Android).

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Game Development Team

- Game development teams can range from a single developer to large groups where specialisation is king:

  - **Engineers**: develop the software and the tools that make the game (runtime programmers and tool programmers). Further specialisation is possible: rendering, AI, sound, networking, gameplay, scripting, system…

  - **Artists**: produce all the visual and audio content of the game, exception made to procedurally generated content. Specialisations: concept, modellers, texture, lighting, animators, motion capture actors, sound designers, voice actors,…

  - **Game designers**: design the gameplay usually with a hierarchical approach: story arc, high-level goals and objectives, level design and game world areas, challenge design, …

  - **Producers**: human resources manager, scheduler, interact with marketing and financing areas

  - **Other Staff**: executive directors, marketing, administrative, IT department, …

  - **Publishers and Studios**: in charge of promoting and selling and distributing the game.

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#gamedev

- **Creative Director**: "Yes, we definitely need doors in this game."
- **Project Manager**: "I'll put time on the schedule for people to make doors."
- **Designer**: "I wrote a doc explaining what we need doors to do."
- **Concept Artist**: "I made some gorgeous paintings of doors."
- **Art Director**: "This third painting is exactly the style of doors we need."
- **Environment Artist**: "I took this painting of a door and made it into an object in the game."
- **Animator**: "I made the door open and close."
- **Sound Designer**: "I made the sounds the door creates when it opens and closes."
- **Audio Engineer**: "The sound of the door opening and closing will change based on where the player is and what direction they are facing."
- **Composer**: "I created a theme song for the door."
- **FX Artist**: "I added some cool sparks to the door when it opens."
- **Writer**: "When the door opens, the player will say, 'Hey look! The door opened!'"
- **Lighter**: "There is a bright red light over the door when it's locked, and a green one when it's opened."
- **Legal**: "The environment artist put a Starbucks logo on the door. You need to remove that if you don't want to be sued."
- **Character Artist**: "I don't really care about this door until it can start wearing hats."
- **Gameplay Programmer**: "This door asset now opens and closes based on proximity to the player. It can also be locked and unlocked through script."
- **AI Programmer**: "Enemies and allies now know if a door is there and whether they can go through it."
- **Network Programmer**: "Do all the players need to see the door open at the same time?"
- **Release Engineer**: "You need to get your doors in by 3pm if you want them on the disk."
- **Core Engine Programmer**: "I have optimized the code to allow up to 1024 doors in the game."
- **Tools Programmer**: "I made it even easier for you to place doors."
- **Level Designer**: "I put the door in my level and locked it. After an event, I unlocked it."
- **UI Designer**: "There's now an objective marker on the door, and it has its own icon on the map."
- **Combat Designer**: "Enemies will spawn behind doors, and lay cover fire as their allies enter the room. Unless the player is looking inside the door in which case they will spawn behind a different door."
- **Systems Designer**: "A level 4 player earns 148xp for opening this door at the cost of 3 gold."
- **Monetization Designer**: "We could charge the player $.99 to open the door now, or wait 24 hours for it to open automatically."

- **Monetization Designer**: "We could charge the player $.99 to open the door now, or wait 24 hours for it to open automatically."
- **QA Tester**: "I walked to the door. I ran to the door. I jumped at the door. I stood in the doorway until it closed. I saved and reloaded and walked to the door. I died and reloaded then walked to the door. I threw grenades at the door."
- **UX / Usability Researcher**: "I found some people on Craigslist to go through the door so we could see what problems crop up."
- **Localization**: "Door. Puerta. Porta. Porte. Tür. Dør. Deur. Drzwi. Drws. 문"
- **Producer**: "Do we need to give everyone those doors or can we save them for a pre-order bonus?"
- **Publisher**: "Those doors are really going to help this game stand out during the fall line-up."
- **CEO**: "I want you all to know how much I appreciate the time and effort put into making those doors."
- **PR**: "To all our fans, you're going to go crazy over our next reveal #gamedev #doors #nextgen #retweet"
- **Community Manager**: "I let the fans know that their concerns about doors will be addressed in the upcoming patch."
- **Customer Support**: "A player contacted us, confused about doors. I gave them detailed instructions on how to use them."
- **Player**: "I totally didn't even notice a door there."

One of the reasons I like this example is because it's so mundane. There's an impression that game design is flashy and cool and about crazy ideas and fun all the time. But when I start off with, "Let me tell you about doors..." it cuts straight to the everyday practical considerations.

Reposted from: http://www.lizengland.com/blog/2014/04/the-door-problem/

- ## Development of doors difficult!!
  The Verge

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Creating Digital Games

- Exemplo: Cyberpunk 2077, RPG from CD Projekt Red launched in 2020

  - Took 10 years to develop

  - Cost: 274 million euros

  - https://youtu.be/hZeuG7jI9mE

[Cyberpunk,2020]

- How games are made:
  UT3:   https://youtu.be/R_TU6nHzHDM
  Open Worlds: https://youtu.be/K-uBVUGqJss

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Designing Games

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Game Design

- Conceptualization: the Idea

- Storytelling: the Narrative

- Game Mechanics: the Experience

- Level Design: Creating the World

- Interface: Establishing the Connection

- Documentation: Clarifying and Communicating

- Testing: Playtesting

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Designing an Experience

[Theme Hospital,1997]

- The game designer creates the experience

  - How to create good experiences?

  - This encompasses: Psychology, Anthropology and Design.

  - "The only reality that we know is the reality that we experience. We filter reality thorough our senses and through our minds, and the consciousness we actually experience is a kind of illusion."

  - Game designers must have a lot of skills, but the most important is to listen:
    - Team, audience, game, client and self.

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Conceptualization

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Essential Game Experience

- What experience do I want the player to have?

- What is essential to that experience?

- How can my game capture that essence?

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Game Surprise

- What will surprise players when they play my game?

- Does the story in my game have surprises? The game rules? Artwork? technology?

- Do your rules give players ways to surprise each other?

- Do your rules give players ways to surprise themselves?

Fun & Curiosity

[Worms,1995]

- What parts of my game are fun? Why?

- What parts need to be more fun?

- What questions does my game put into the players mind?

- What am I doing to make them care about these question?

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Problem Solving

[Portal,2007]

- What problems does my game ask the player to solve?

- Are there hidden problems to solve that arise from gameplay?

- How can my game generate new problems so that players keep coming back?

JOGOS E SIMULAÇÃO

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Where to start?

- Get an idea, choose a genre and a visual style

- Brainstorm the idea with the team without restrictions

- Find a story: focus the attention of the team

- Develop characters:

  - Makes story more real and credible

  - Humanize characters

  - Define roles for the characters

- Accommodate restrictions only in the end (publisher/marketing, genre…)

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Where to start?

- The ==game development process is iterative.==

- Prototyping is very important to mitigate risks.

- Sometimes is better to create the toy first and the game later.

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Genre and Style

- Genre:

  - Platform, Shooter, RPG, Tower Defense, Strategy, …

- Style

  - Top-down, Isometric, Side-Scrolling, Mode7/Faux 3D

  - Real-Time, Turn-based, Time-trial

  - Single-player, Dual-player, multiplayer

  - Online vs local.

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The Eight Filters

- Does the game feel right?

- Will the intended audience like this game enough?

- Is this a well-designed game?

- Is this game novel enough?

- Will this game sell?

- Is it technically possible to build this game?

- Does this game meet our social and community goals?

- Do the playtesters enjoy this game?

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Motivation

- If my game had no specific goal, would it be fun at all? If not, how can I change that?

- When people see my game, do they want to start interacting with it, even before they know what to do? If not, how can I change that?

- What motivations do players have to play my game?

- Which motivations are pleasure seaking? Which are pain avoiding?

[FarmVille,2009]

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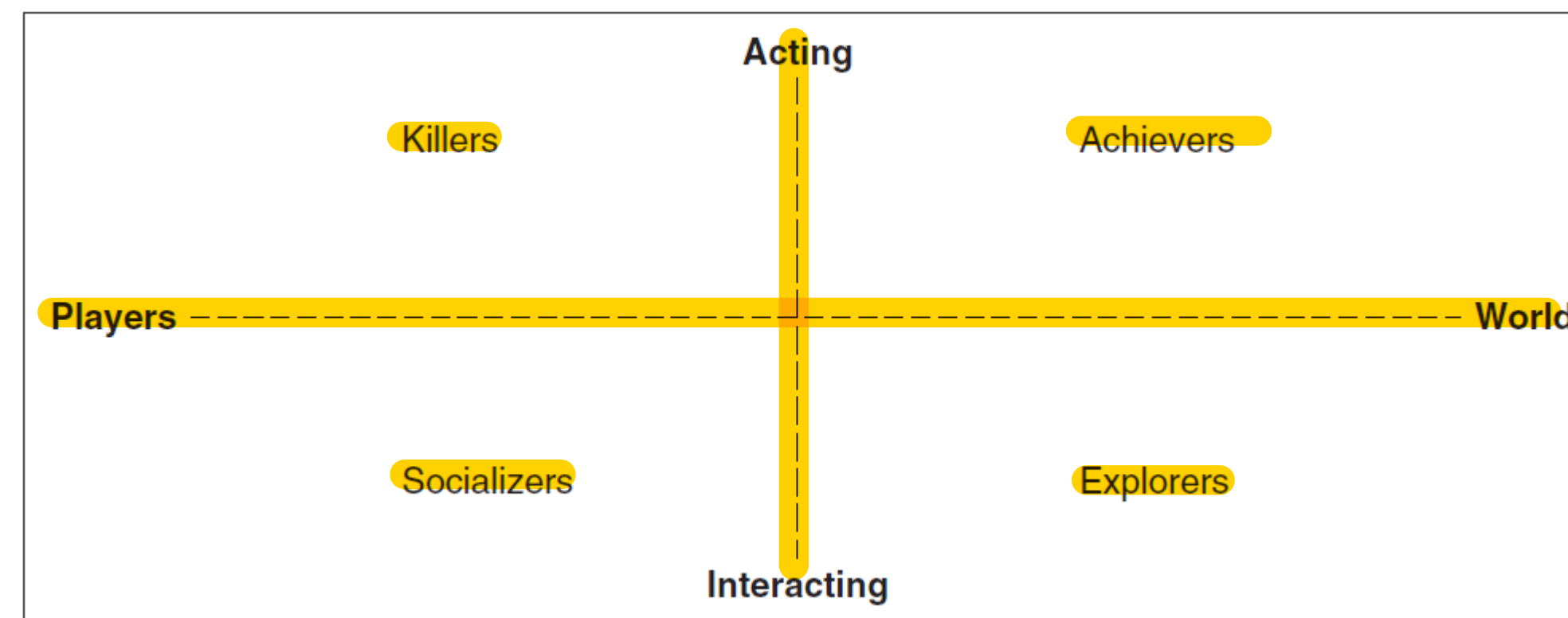NOVA SCHOOL OF
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The Player

- Demographics affect the way the games are perceived: age / gender

- Game designer Marc LeBlanc has proposed a taxonomy of game pleasures

- In general, what do they like?

- What don't they like? Why?

- What do they expect to see in a particular game?

- If I were the player what would I expect to see?

- What would they like/dislike about my game in particular?

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LeBlanc's Taxonomy of Game Pleasures

1. Sensation: Using your senses to sense the game world.

2. Fantasy: Imaginary world.

3. Narrative: The dramatic unfolding of a sequence of events.

4. Challenge: one of the core pleasures, related to problem solving.

5. Fellowship: Cooperation and communities.

6. Discovery: Exploring the game world and discovery of a secret feature…

7. Expression: the player expresses himself by creating things.

8. Submission: the suspension of disbelief.

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Richard Bartle's
Taxonomy of Player Types

1. Achievers: Their primary pleasure is challenge.

2. Explorers: Their primary pleasure is discovery.

3. Socializers: They seek pleasures of fellowship.

4. Killers: They enjoy a mix of pleasures of competition and destruction.

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Conceptualization

- **Who** is the game for?

- **What** is the idea, main concept, main characters?

- **What** will be the technology used?

- **What** kind of genre and aesthetics will it follow?

- **Why** will the players be motivated to play?

- **How** will players play the game?

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