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BA COMPUTER GAMES DESIGN

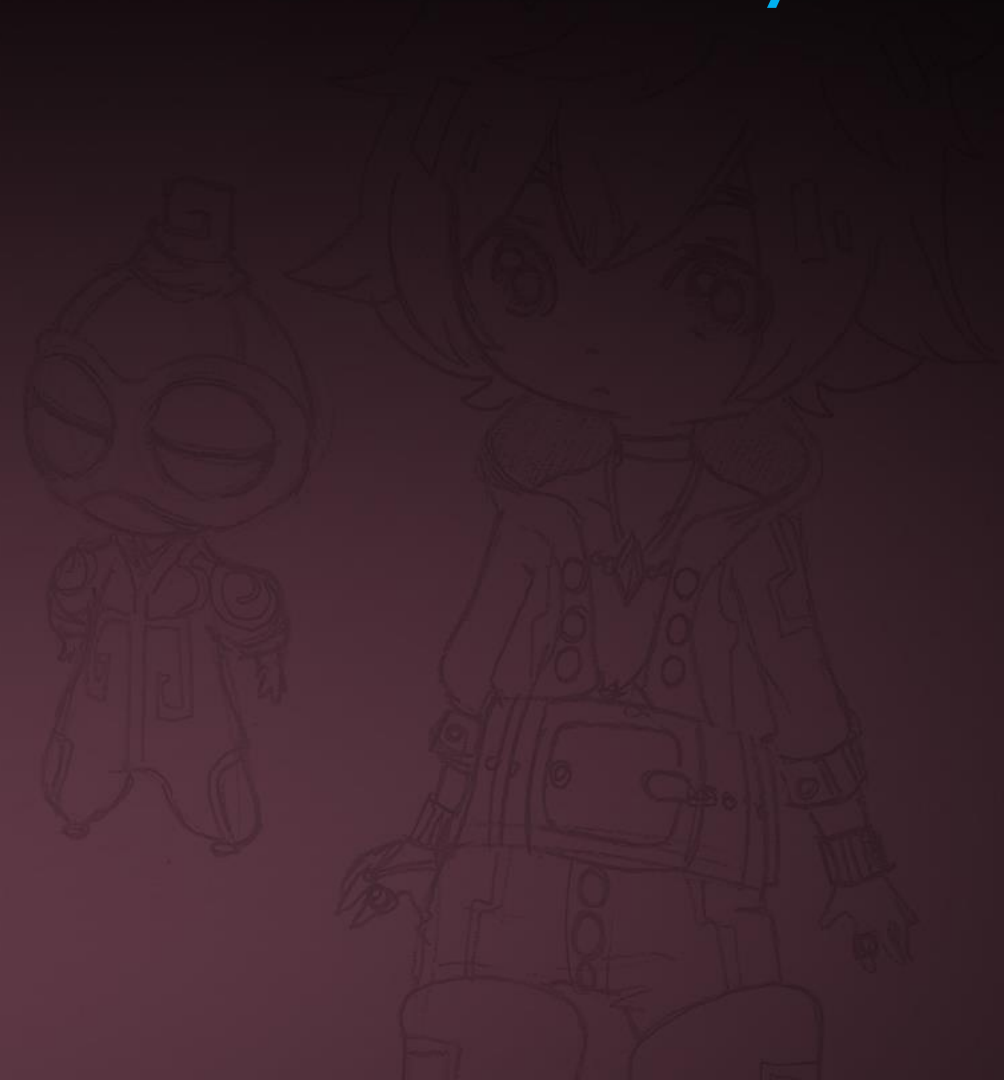
GAME THEORY & DESIGN

Adams & Rollings: Skill, Stress and Absolute Difficulty



Ernest Adams and Andrew Rollings: Skill, Stress and Absolute Difficulty

- Intrinsic Skill
- Stress
- Absolute Difficulty
- Game Examples – Steam Library





GAME THEORY & DESIGN

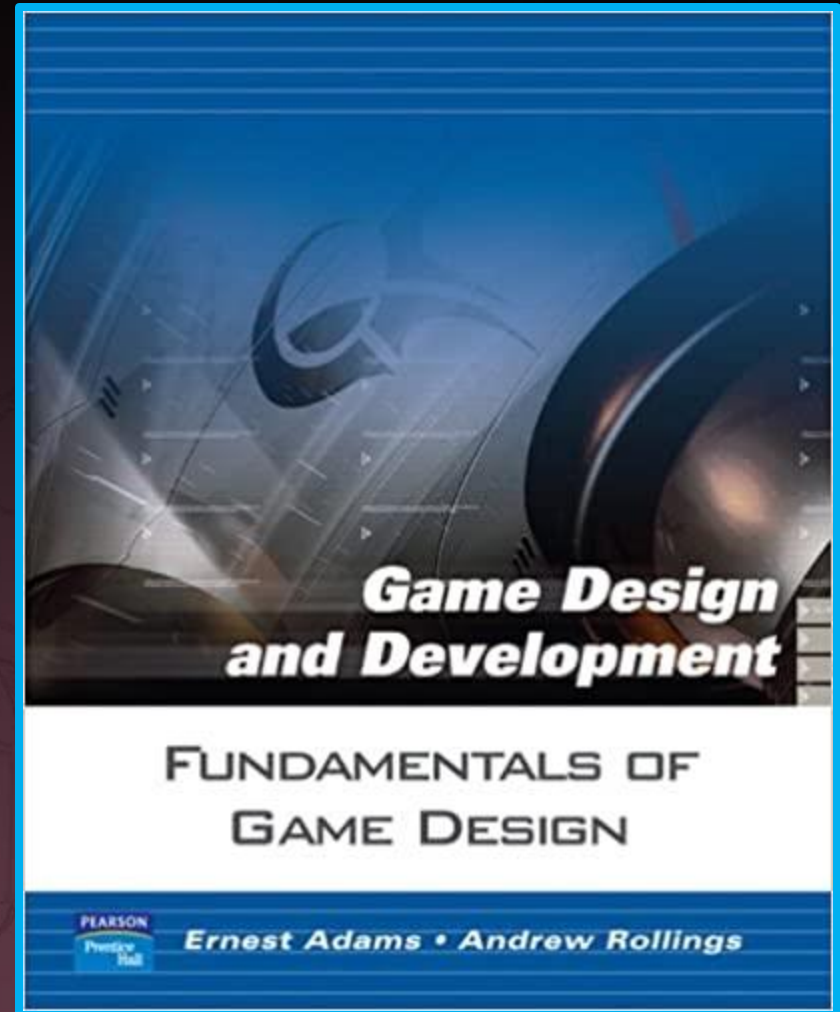
Adams & Rollings: Skill, Stress & Absolute Difficulty

Further reading:

Gameplay, Challenges and Stress

Ernest Adams & Andrew Rollings, Fundamentals of Game Design

(Available in **Y Fforwm Library**, SA1)





Adams and Rollings: Fundamentals of Game Design

Skill, Stress and Absolute Difficulty



normal job in
crazy ass world.

fixed position
- talking to
npc's





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- **Stress**



Adams and Rollings: Fundamentals of Game Design

Skill, Stress and Absolute Difficulty

Intrinsic Skill



Intrinsic skill required by a challenge is **the level of skill needed to surmount the challenge if you give the player an unlimited amount of time in which to do it.**

The intrinsic skill required for a challenge may be computed from the conditions of the challenge **but leaving out any element of time pressure.**

How you measure the skill level of a challenge varies with the type of challenge and can involve physical tasks, mental tasks, or both.

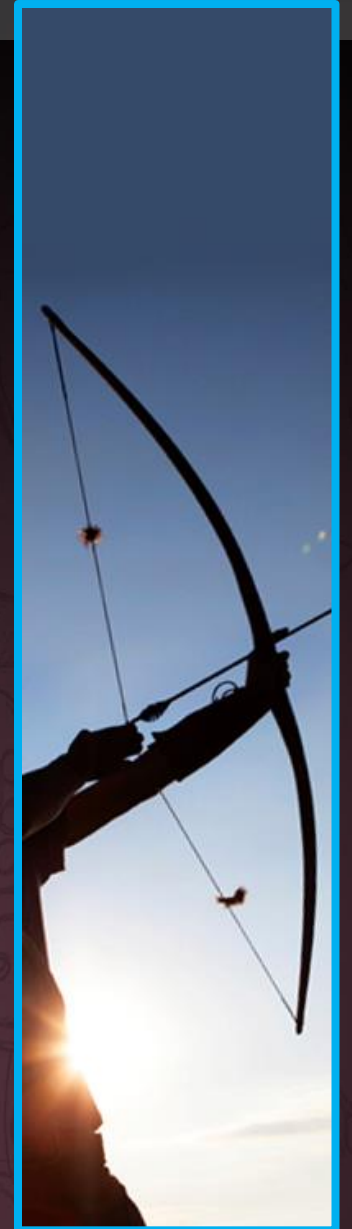


Intrinsic Skill Required: EXAMPLE 1

An archer aiming at a target requires a certain level of skill to hit the target.

It takes more skill to hit the target if you move it farther away, or make it smaller.

The archer gets an unlimited amount of time to aim. Even if they take more time, it does not change the skill required.

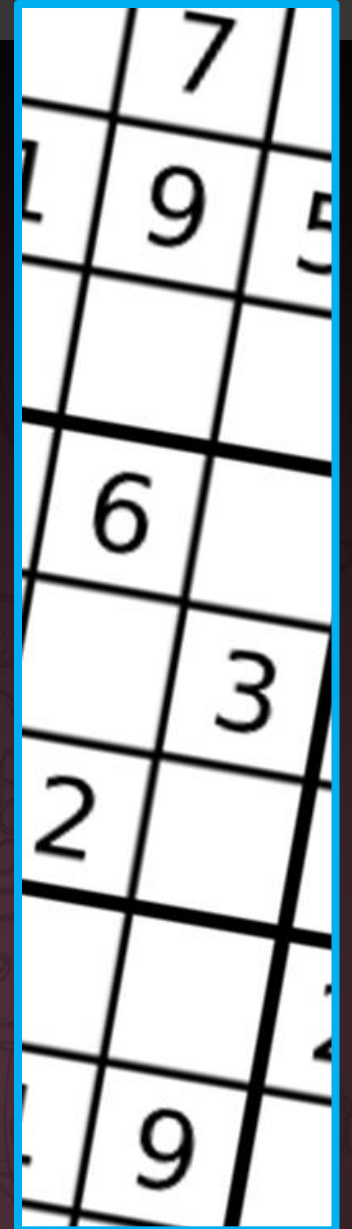




Intrinsic Skill Required: EXAMPLE 2

Sudoku puzzles printed in newspapers often include a **rating** that indicates whether they are easy or hard to solve.

The player may take as long as they want to solve the puzzle so the rating reflects and intrinsic quality of the puzzle – **how many clues the player gets** – rather than the effect of a time limit.





Intrinsic Skill Required: EXAMPLE 3

A trivia game requires the player to know certain **factual knowledge**.

Some questions are about familiar facts and some are about obscure facts.

The skill level required by a question **doesn't change if you give the player more time to answer.**





Adams and Rollings: Fundamentals of Game Design

Skill, Stress and Absolute Difficulty

Stress



If a challenge includes a time pressure a new factor comes into play: **Stress**.

Stress measures how a player perceives the effect of time pressure on their ability to meet a challenge requiring a given level of **intrinsic skill**.

The shorter the time limit, the more stressful the situation.



Succeeding in a stressful game requires both quick reflexes and a quick mind.

The challenges of *Tetris* do not require a great deal of **intrinsic skill** - it is classed as **stressful** because the player must complete the task under **time pressure**.

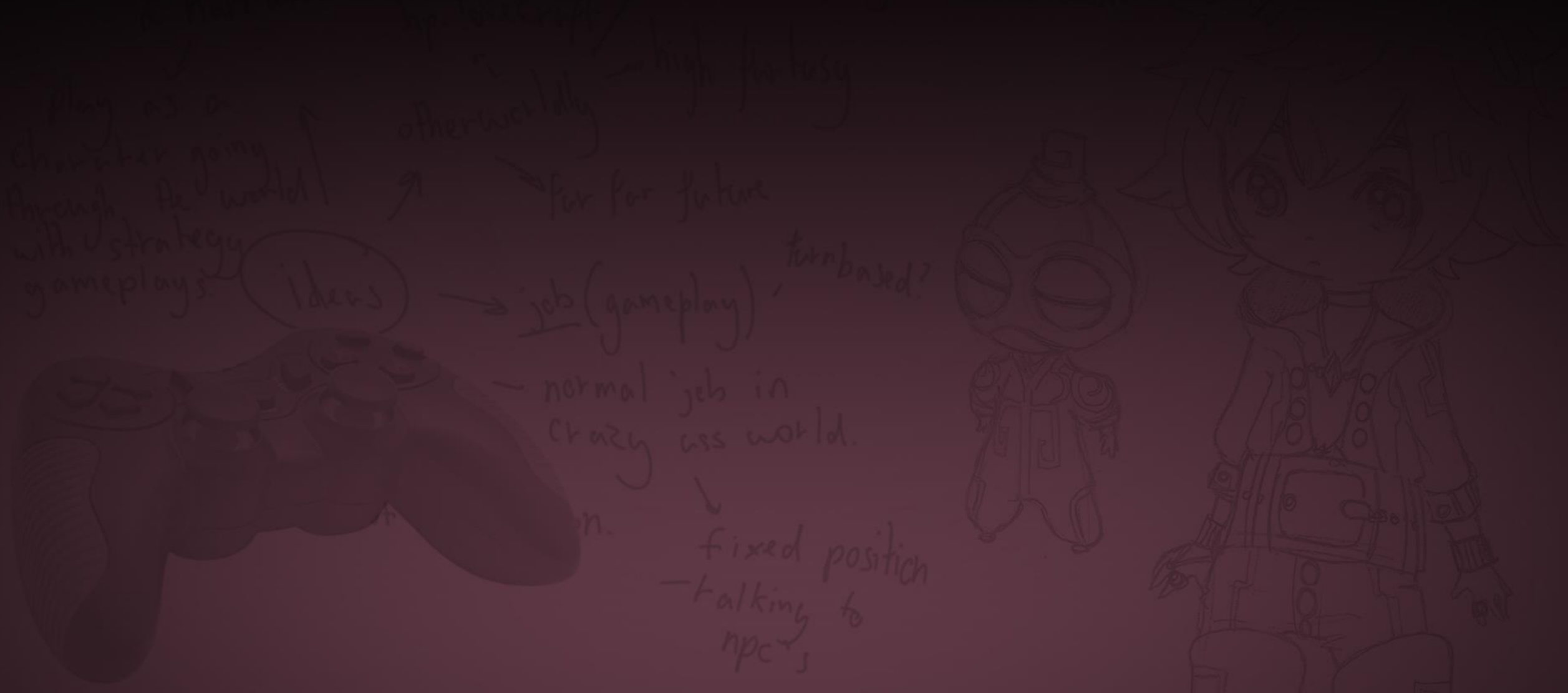


Golf demands skill without being stressful.

The game would be considerably more stressful if the rules imposed more time pressure.



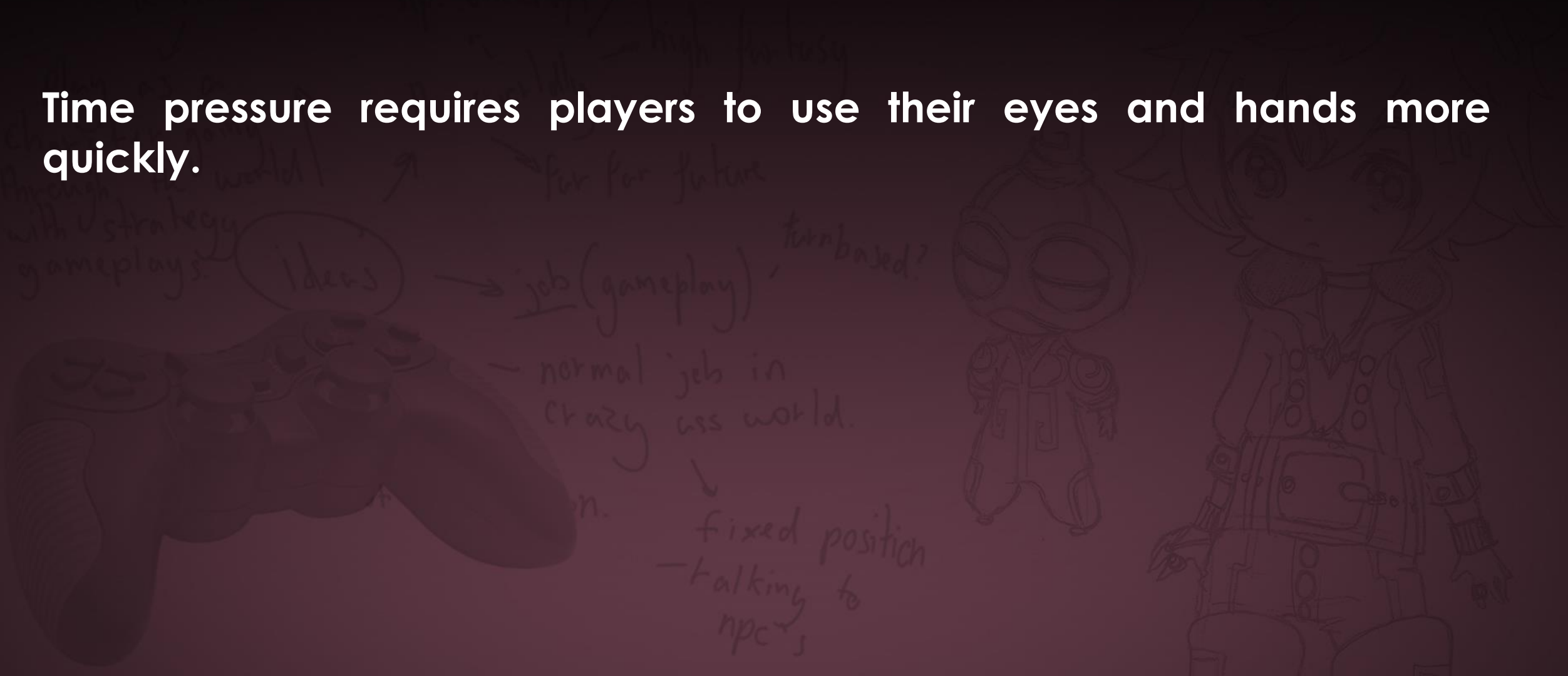
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Time pressure requires players to use their eyes and hands more quickly.

It makes them stiffen their muscles and raises heart rates and adrenaline levels.

Many people love this sensation but you should **modulate the pacing of your game** to give them time to rest.



Adams and Rollings: Fundamentals of Game Design

Skill, Stress and Absolute Difficulty

Absolute Difficulty



Absolute difficulty refers to **intrinsic skill required and stressfulness put together.**

Some players like a challenge that demands a lot of skill but can't tolerate much stress.

Others thrive on stress but do not have much skill.



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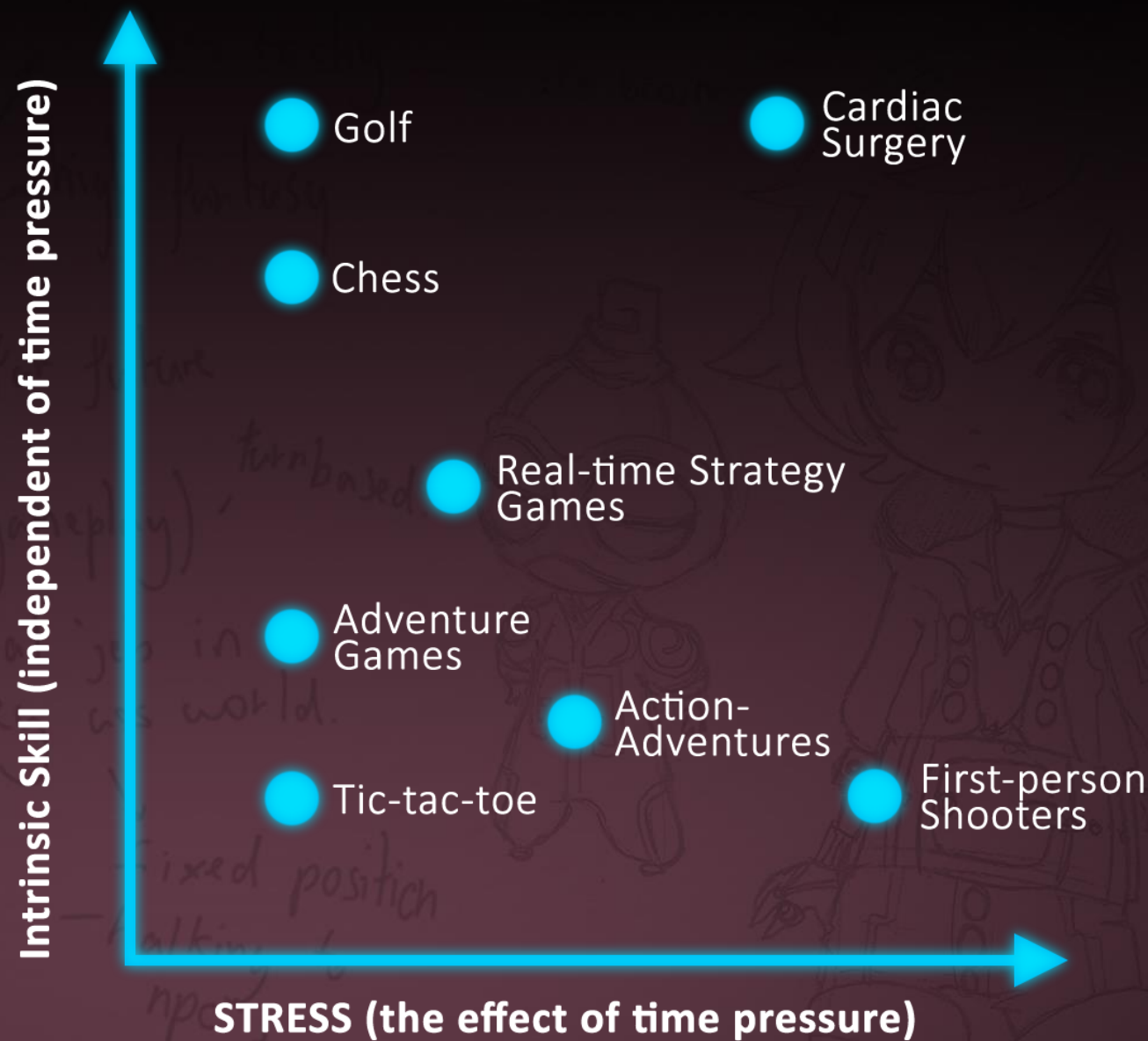
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Skill level + Stress level = Absolute Difficulty



Intrinsic Skill Required vs Stress



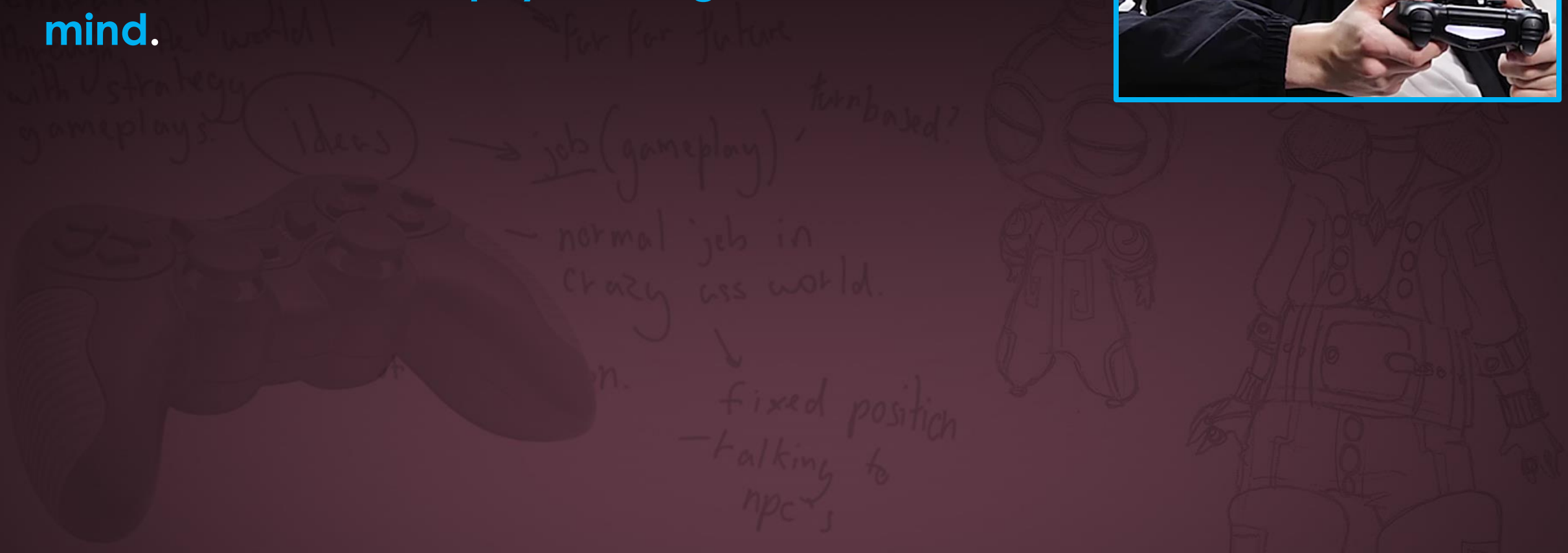


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Absolute Difficulty

When you are deciding how difficult you want your game to be, think about both skill levels and stress and **keep your target audience in mind.**





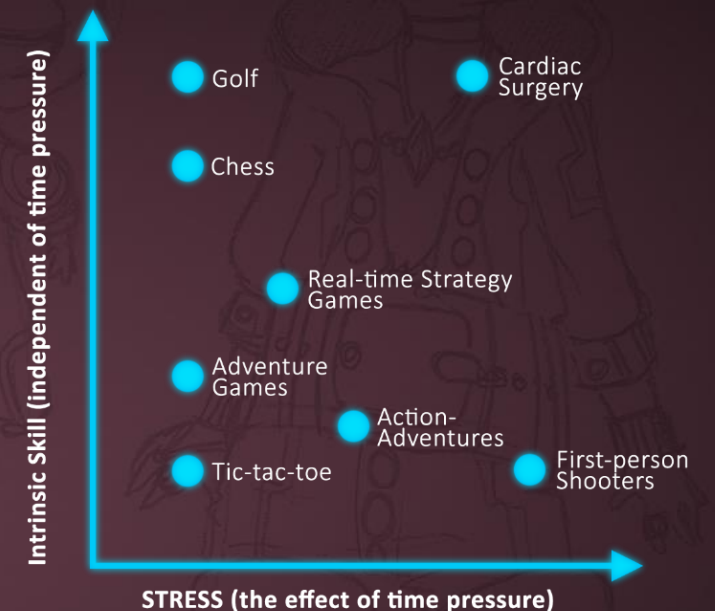
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Absolute Difficulty

When you are deciding how difficult you want your game to be, think about both skill levels and stress and **keep your target audience in mind.**

When you allow the player to set a difficulty level for the game, try to **preserve an inverse relationship between skill level and stress** at that particular level of difficulty.





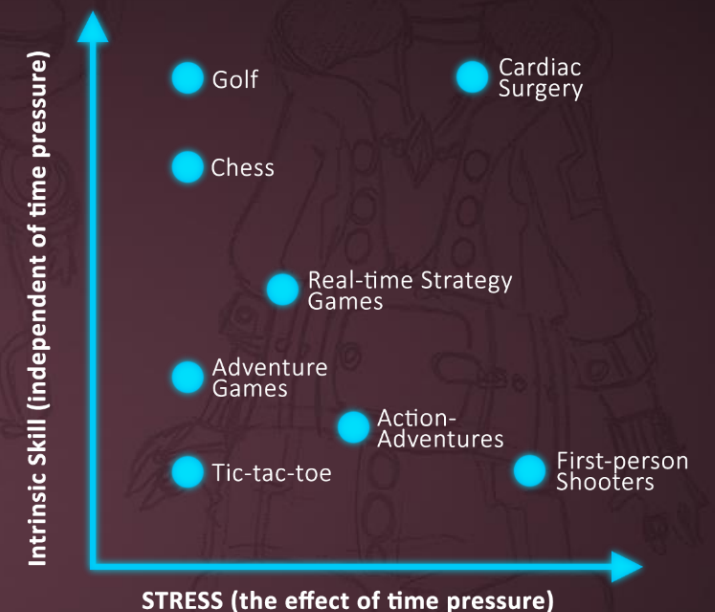
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Absolute Difficulty

If a challenge requires **more skill**, give the **player longer to perform it**.

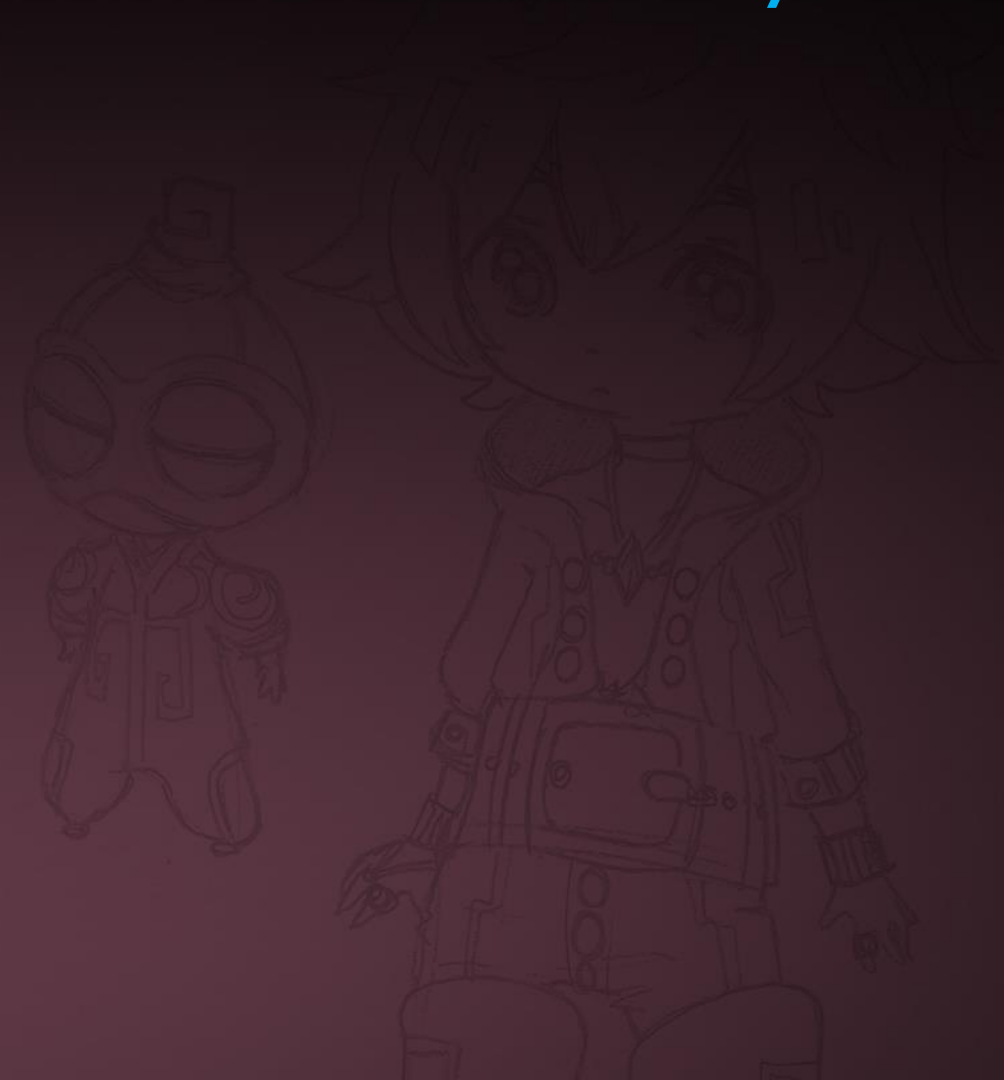
If a lower level of **intrinsic skill** is required, you **can afford to give your player less time to overcome a challenge**.





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Any questions?



Game Examples (Steam Library)

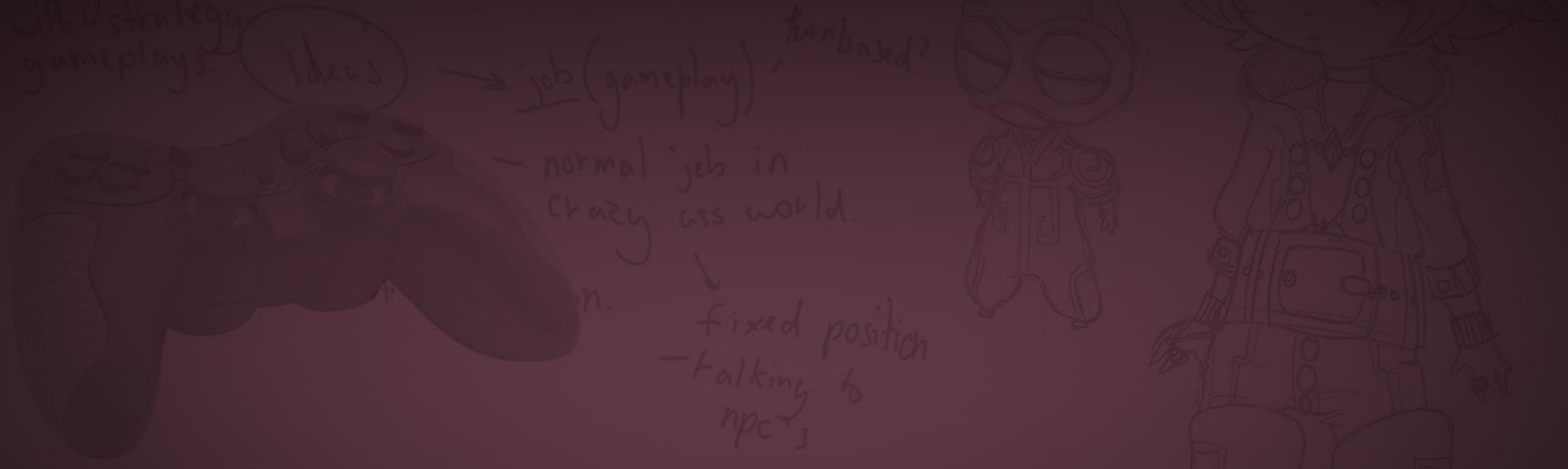
Examples of Inverse relationship between Skill and Stress

- *Cook, Serve, Delicious 2* (Vertigo Games, 2017) – **High Stress**
- *Peggle Deluxe* (Popcap, 2007) – **High Skill**
- *Columns* (Sega, 1990) – **Balance / progression of stress and skill**



Books

**Adams, E. & Rollings, A. (2007). *Fundamentals of Game Design*.
Pearson Education Inc, USA.**





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