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BA COMPUTER GAMES DESIGN

GAME THEORY & DESIGN

Game Design Documents



Game Design Documents

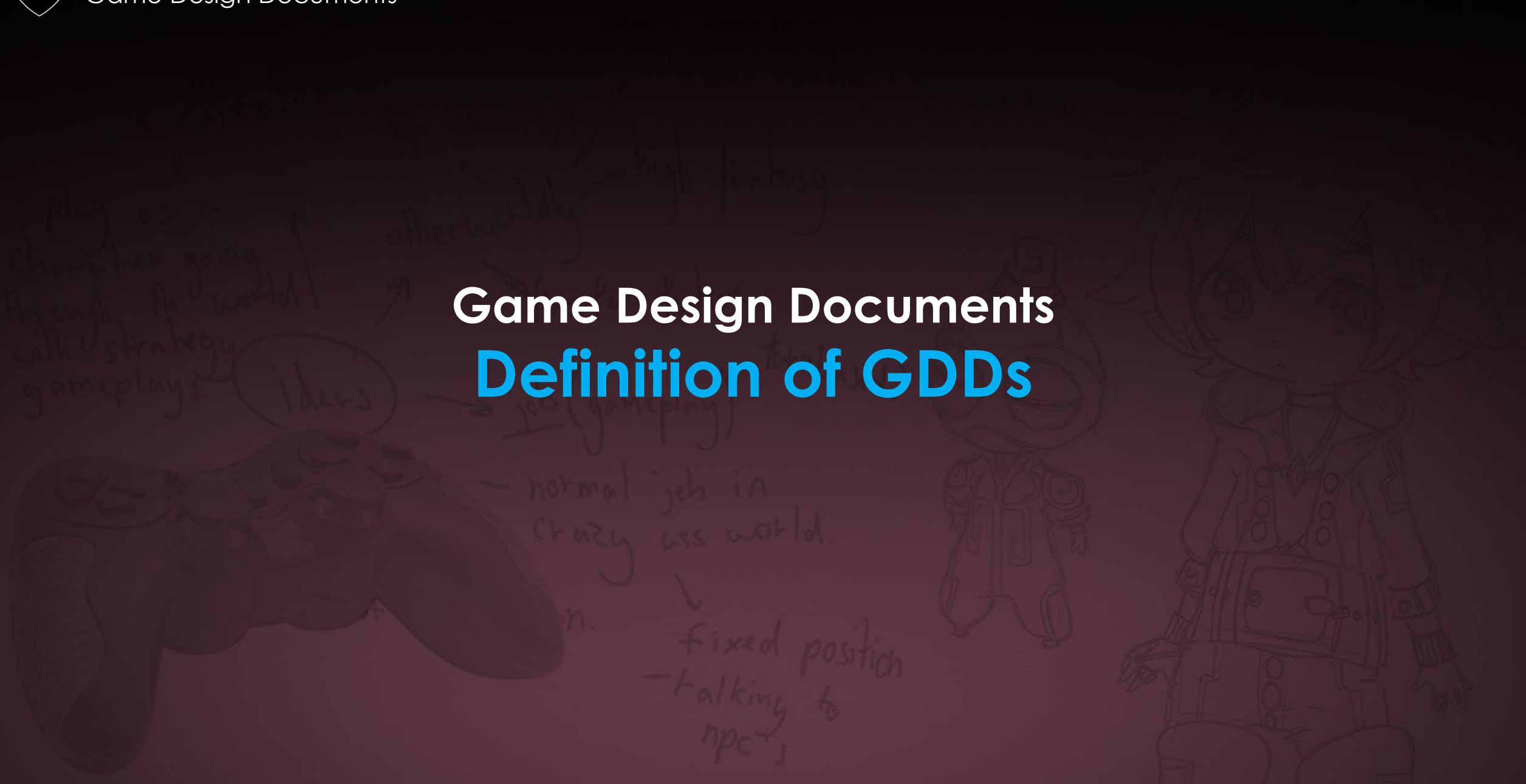
- Definitions of Game Design Documents (GDDs)
- Why GDDs are Needed
- Overview of GDDs
- GDD Techniques
- The Beat Chart (exercise)





Game Design Documents

Definition of GDDs

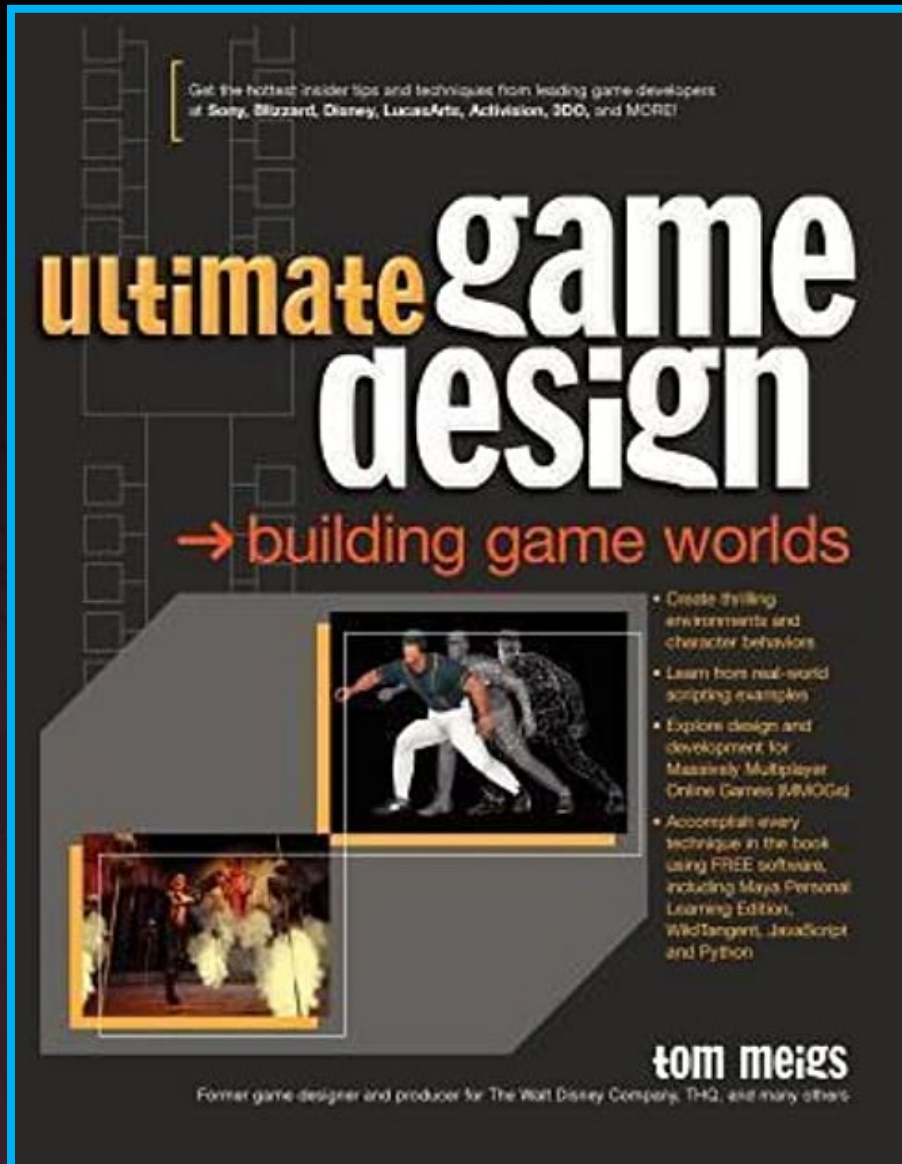




GAME THEORY & DESIGN

Game Design Documents

Definition of GDDs

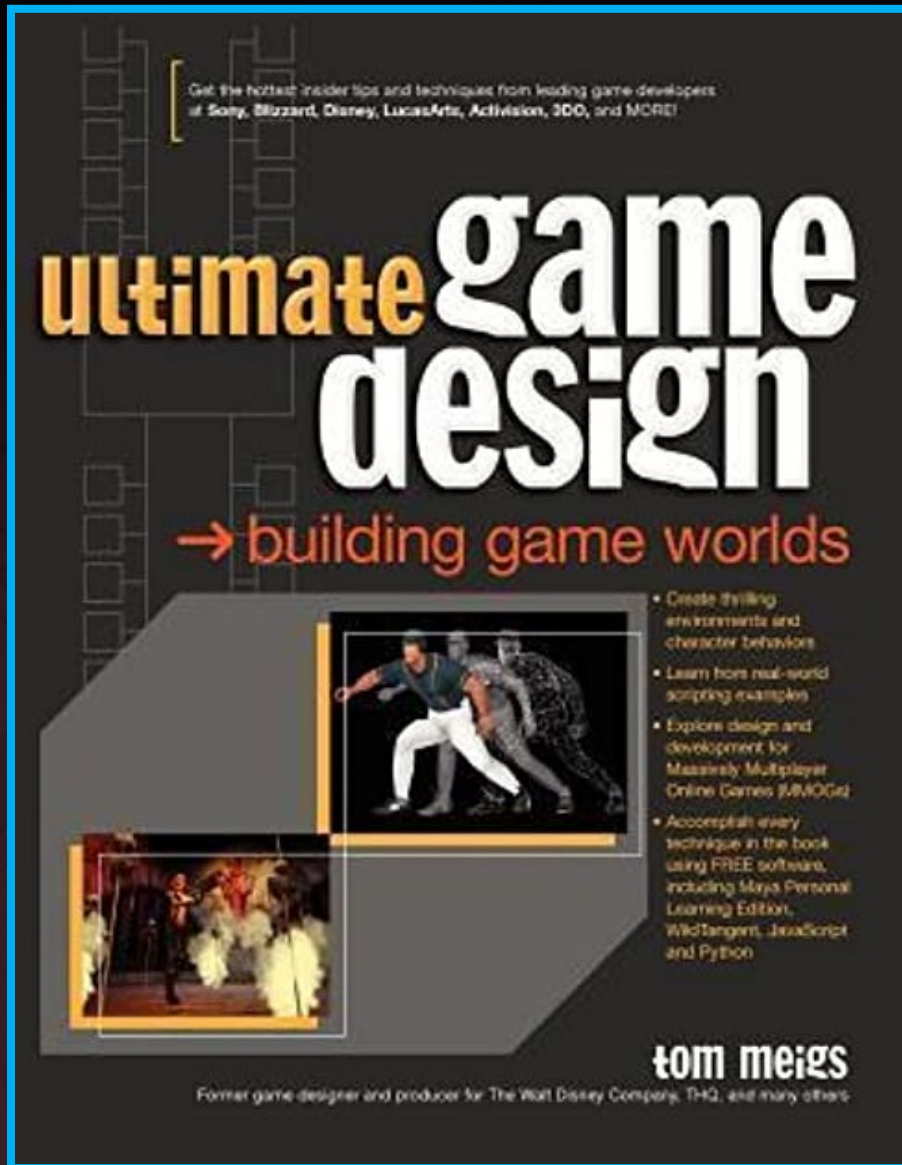


Tom Meigs: *Ultimate Game Design – Building Game Worlds* (2003)

A Design Document needs to present **dynamic and useful information** to your development team **quickly**.

A solid Design Document will leave no piece of feature or functionality undefined.

(Meigs, 2003, p.316)



Tom Meigs: *Ultimate Game Design – Building Game Worlds* (2003)

Features and functionality will change, but each basic aspect of your game should have a reasonable starting point denoted in your design document.

(Meigs, 2003, p.316)

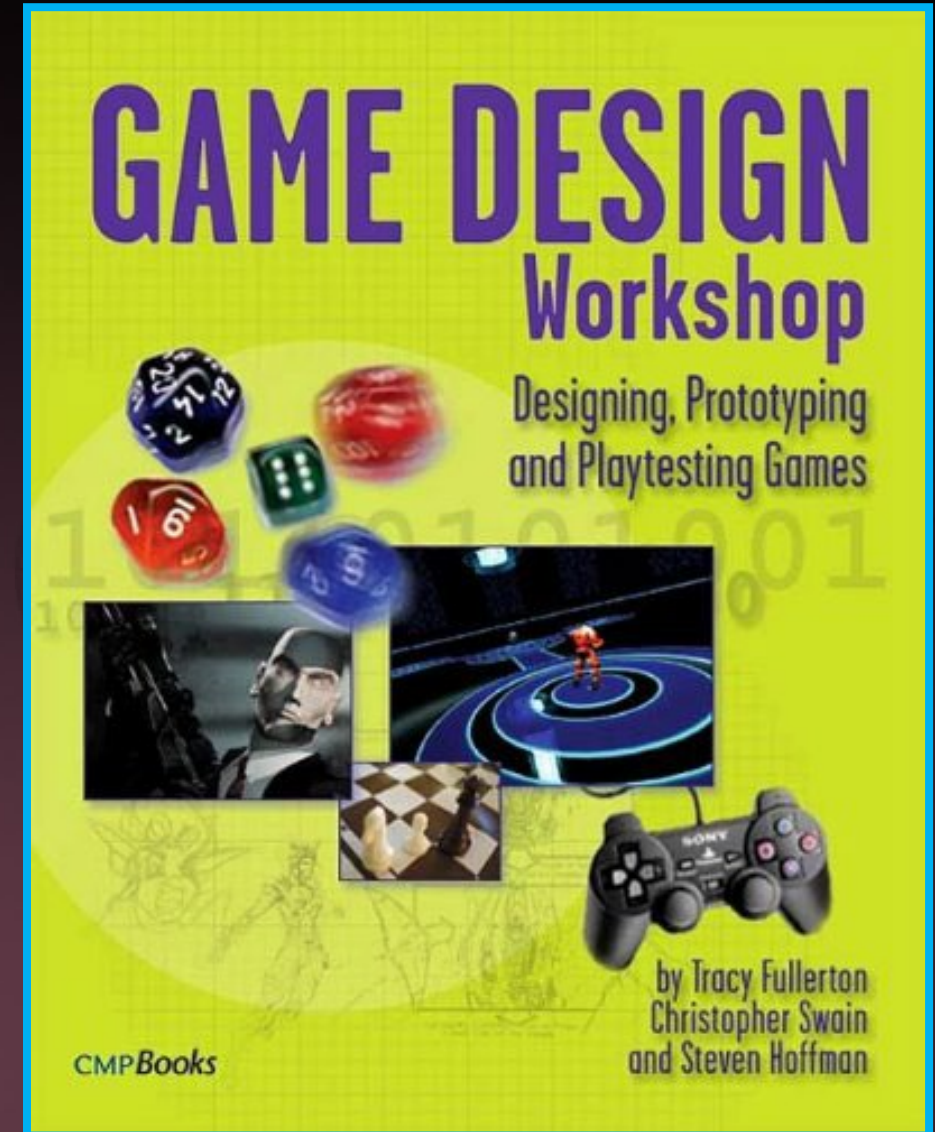


Tracy Fullerton, Christopher Swain and Steven Hoffman: *Game Design Workshop* (2004)

“A good design document is like a sound blueprint for a building.”

Everyone can refer to it while they do their separate tasks and understand how their work fits into the game as a whole.”

(Fullerton, Swain & Hoffman 2004, p.370)

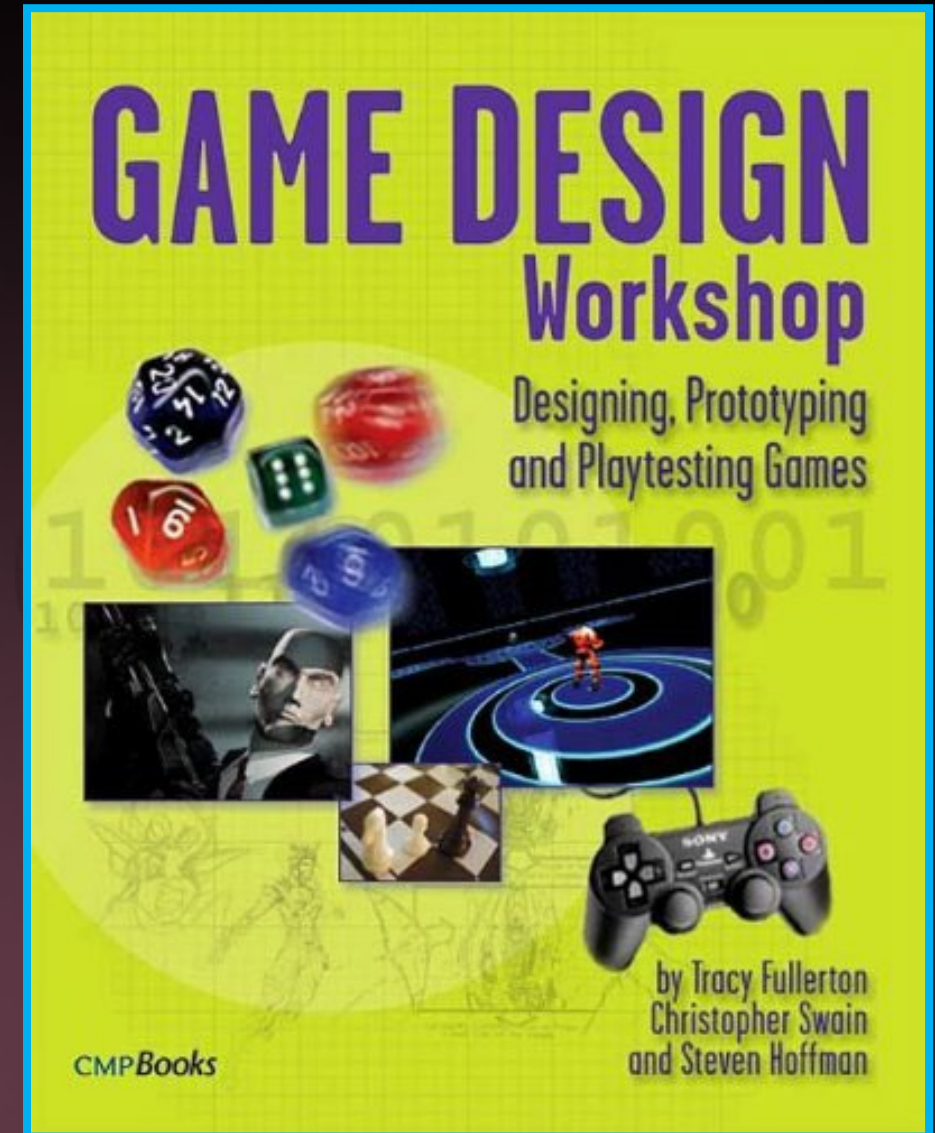




Tracy Fullerton, Christopher Swain and Steven Hoffman: *Game Design Workshop* (2004)

“Without a design document to direct their efforts, the individuals on a team may interpret what they know about the game in their own unique ways, working hard, but not necessarily towards the same ends.”

(Fullerton, Swain & Hoffman 2004, p.370)





Design Documents can be produced as printouts (hard copies) or, increasingly in the games industry, take the form of pages on a [website](#) or [wiki page](#) (Adams & Rollings, 2007).





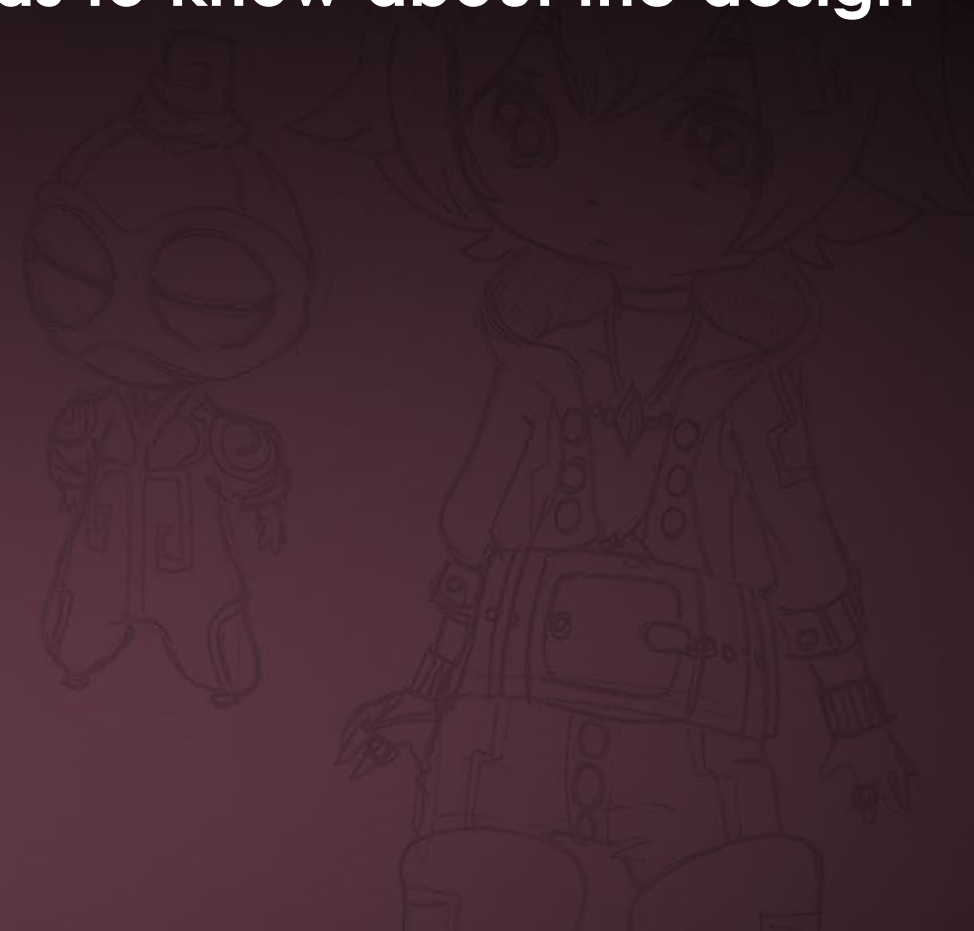
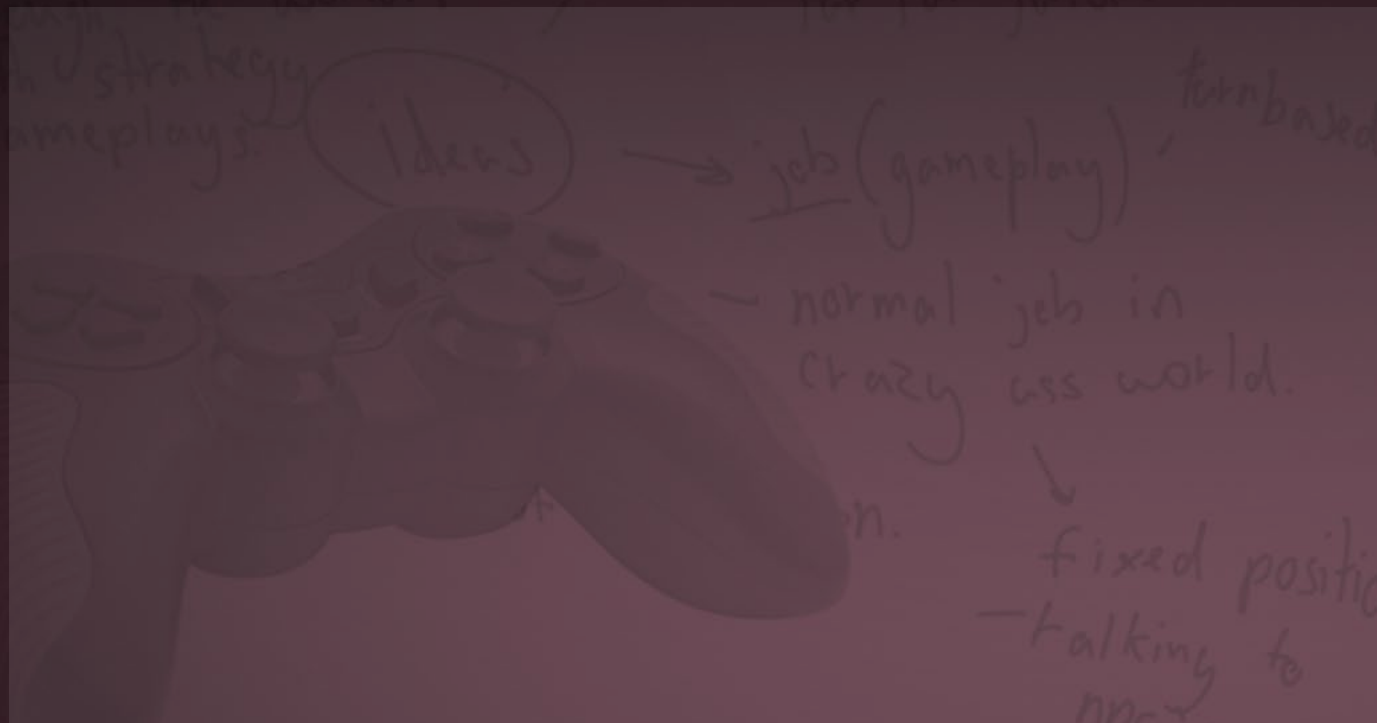
When writing documentation, revision control and **backups** are important – reverting to a previous edition may be necessary if pages or content is accidentally deleted!





Tracy Fullerton, Christopher Swain and Steven Hoffman: *Game Design Workshop* (2004)

The GDD describes **everything** the team needs to know about the design of the game, including:

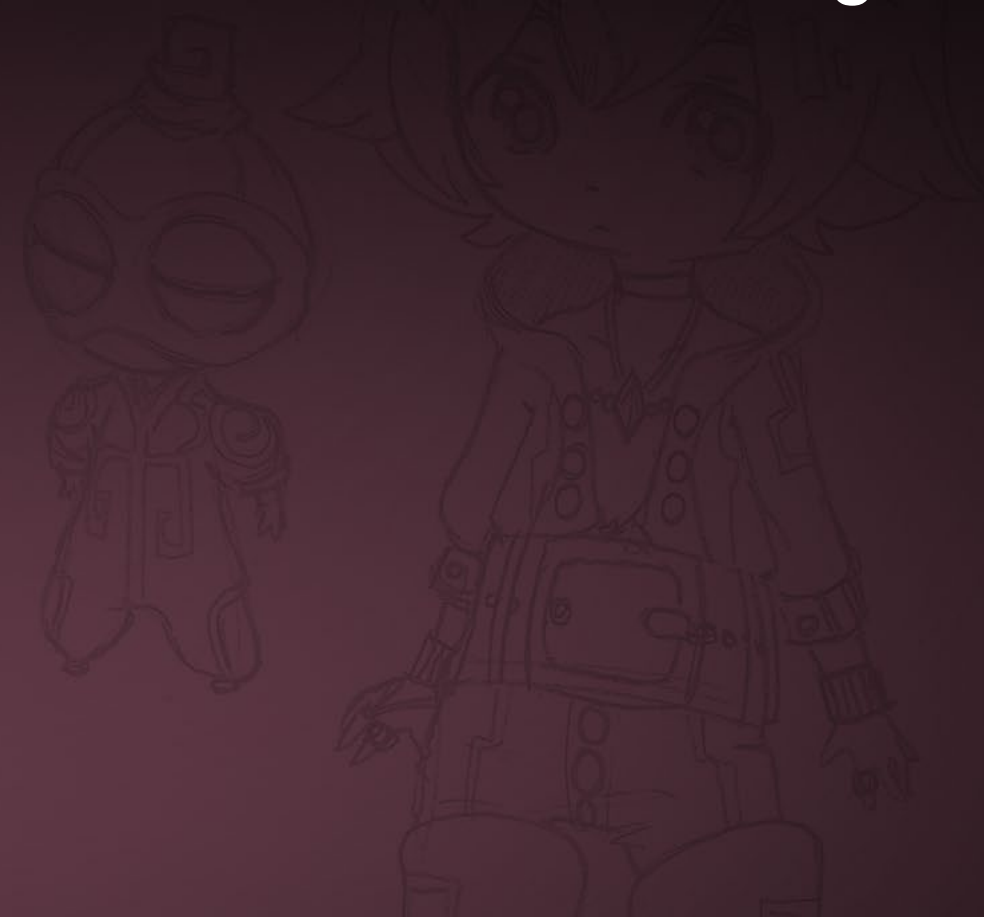




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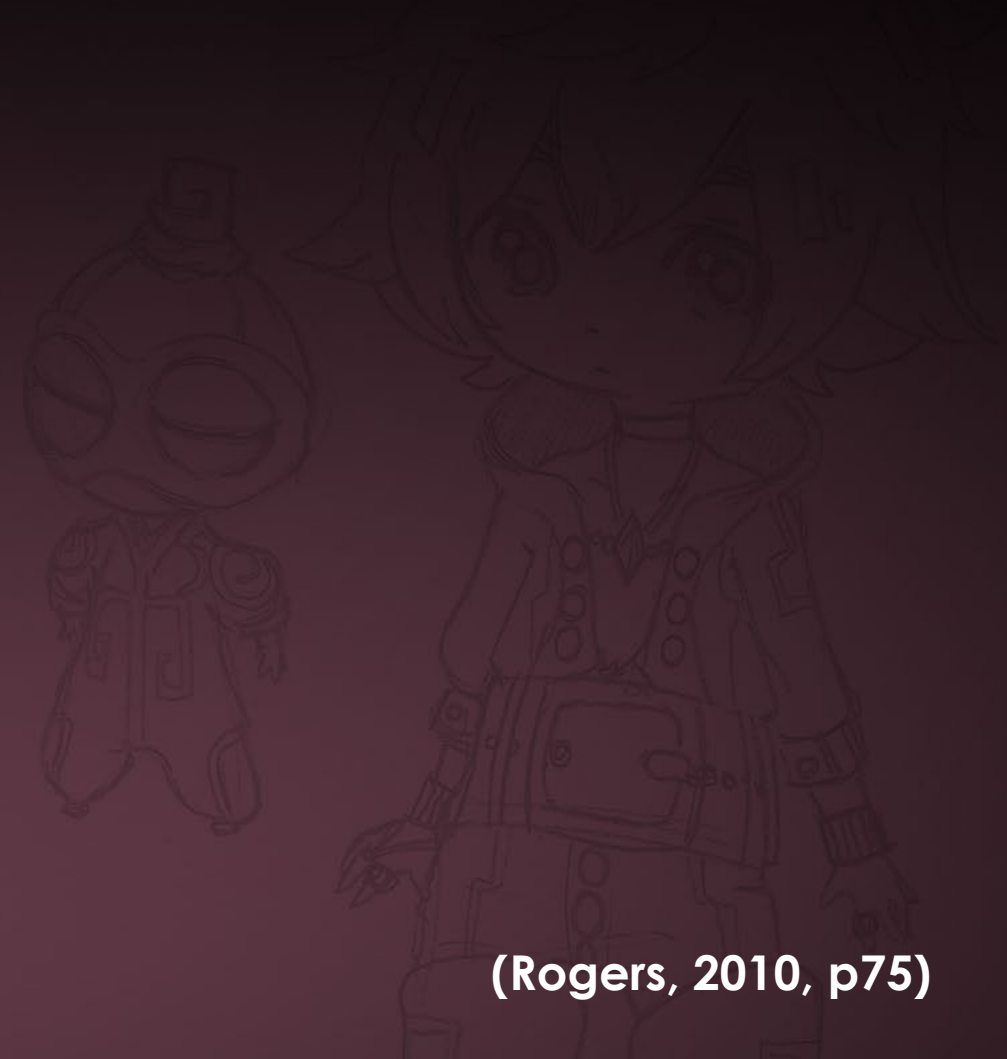
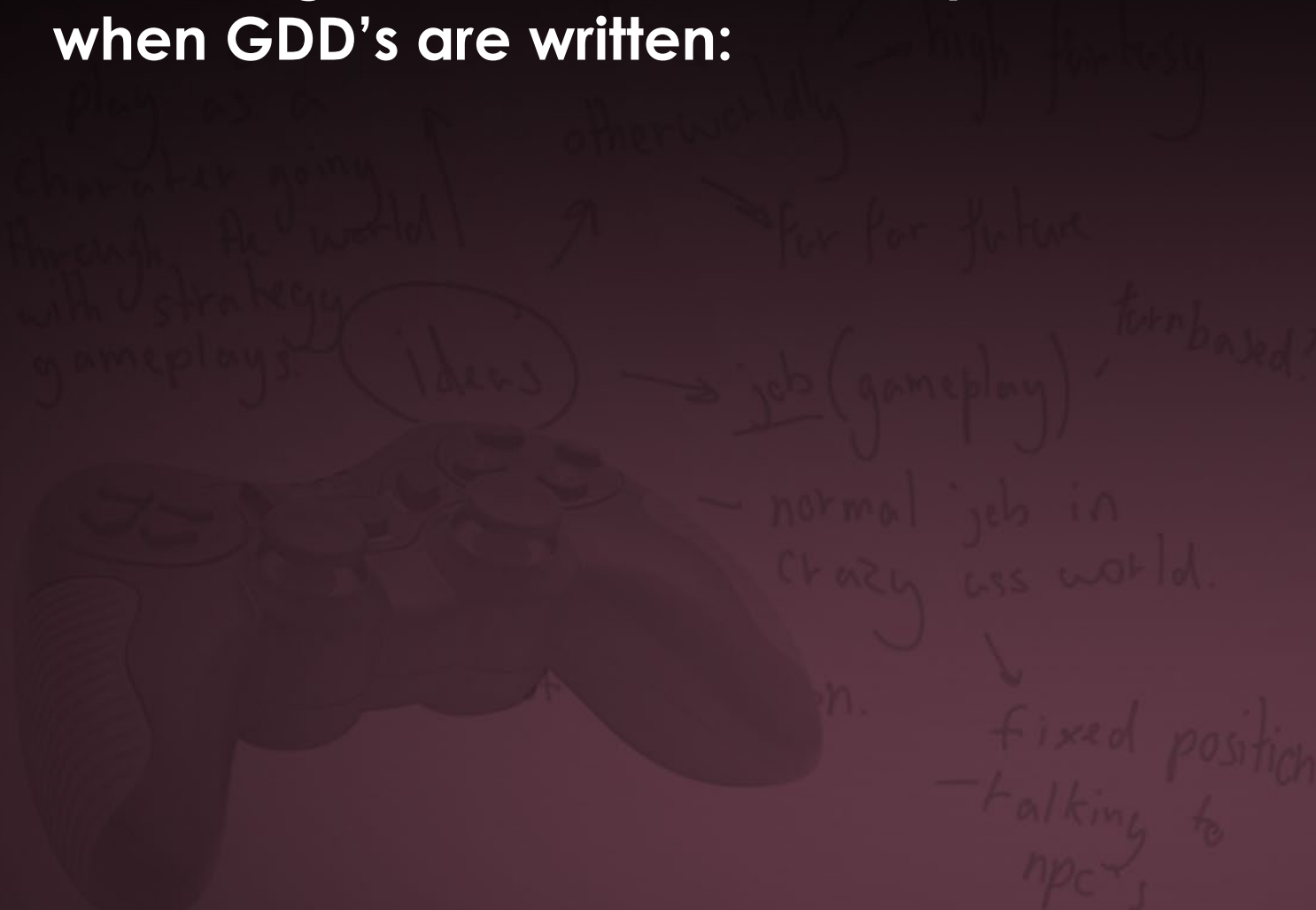
The GDD describes **everything** the team needs to know about the design of the game, including:

- The overall concept of the game
- Target audience
- Gameplay
- Interfaces
- Controls
- Characters
- Levels
- Media Assets





Scott Rogers states that it is important to bear the following in mind that when GDD's are written:



(Rogers, 2010, p75)



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EVERYTHING IS LIQUID



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EVERYTHING IS LIQUID

This means that game designs change, flow and evolve.

Eventually many things featured in the document will become obsolete.

(Rogers, 2010, p75)



Scott Rogers states that it is important to bear the following in mind that when GDD's are written:

EVERYTHING IS LIQUID

Writing can also feel counter-productive when development has to focus on finishing a game, but a GDD is an essential starting point.

(Rogers, 2010, p75)



Game Design Documents

Why GDDs are Needed





Novice programmers and developers, particularly those keen to enter the games industry, often make a **critical mistake**:

NAME OF GAME _____

DESIGN HISTORY _____

VERSION 1.10 _____

VERSION 2.00 _____

VERSION 2.10 _____

GAME OVERVIEW _____

PHILOSOPHY _____

Philosophical point #1 _____

Philosophical point #2 _____

Philosophical point #3 _____

COMMON QUESTIONS _____

What is the game? _____

Why create this game? _____

Where does the game take place? _____

What do I control? _____

How many characters do I control? _____

What is the main focus? _____

What's different? _____

FEATURE SET _____

GENERAL FEATURES _____

MULTI-PLAYER FEATURES _____

EDITOR _____

GAMEPLAY _____

THE GAME WORLD _____

OVERVIEW _____

WORLD FEATURE #1 _____

WORLD FEATURE #2 _____

THE PHYSICAL WORLD _____

Overview _____

Key Locations _____

Travel _____

Scale _____

Objects _____

Weather _____

Day and Night _____

Time _____

RENDERING SYSTEM _____

Overview _____

2D/3D Rendering _____

MERA _____

Overview _____

Camera Detail #1 _____

Handwritten notes on the left side of the form:

- through the world with strategy gameplays
- ideas
- job (gameplay) - turn based?
- normal job in crazy ass world.
- fixed position - talking to npc's



Novice programmers and developers, particularly those keen to enter the games industry, often make a **critical mistake**:

They think of a game idea and start to develop it immediately.

NAME OF GAME _____

DESIGN HISTORY

VERSION 1.10 _____

VERSION 2.00 _____

VERSION 2.10 _____

GAME OVERVIEW

PHILOSOPHY

Philosophical point #1 _____

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Modern game developers insist on having some form of written documentation while design work progresses.

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Here's why:

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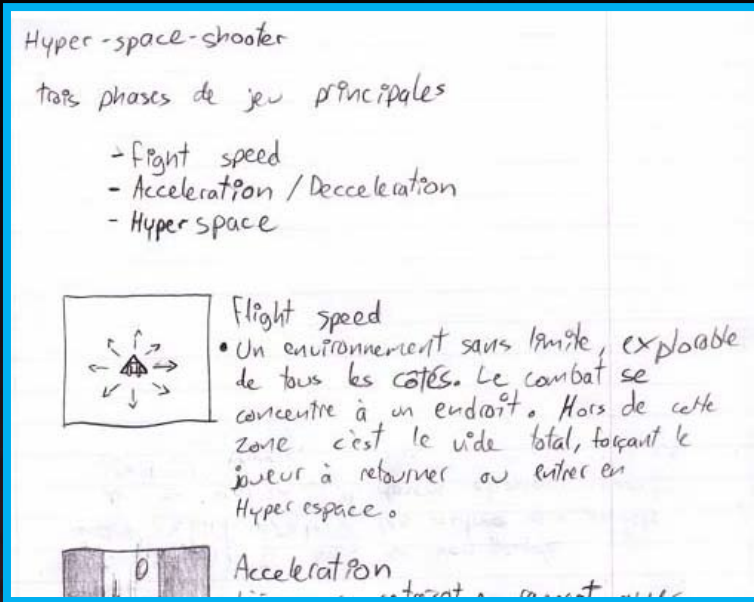
Camera Detail #1 _____



GAME THEORY & DESIGN

Game Design Documents

Why GDDs are Needed



Design documents record decisions made during the design process, turning a vague idea into an **explicit plan**.

CHARACTER DOSSIER / DETAILS	
NAME:	
GENDER:	
SPECIES:	
AGE:	
FACTION:	
KNOWN ASSOCIATES:	

CHARACTER'S BACKSTORY	

CHARACTER CONTROLS / PLAYER CONTROLS	

It is far **easier and cheaper** to correct or refine a design before code, artwork, or assets are created.



“Creating documentation will help you as much as your team mates. If you keep the game “in your head” I guarantee there is going to be a moment when you have *too much to keep track of and you will get overwhelmed.*”

(Rogers, S., 2010, p.72)



A game design document **outlines everything that will be in the game** and is an **important source of information** that the entire team will refer to during the production of the project.



Game Design Documents

Overview of GDDs





The size of a GDD can also vary depending on genre, intended platforms, the scope of the game being designed, etc.

There is **no single correct way** to structure a design document.

(Meigs, 2003, p.316)



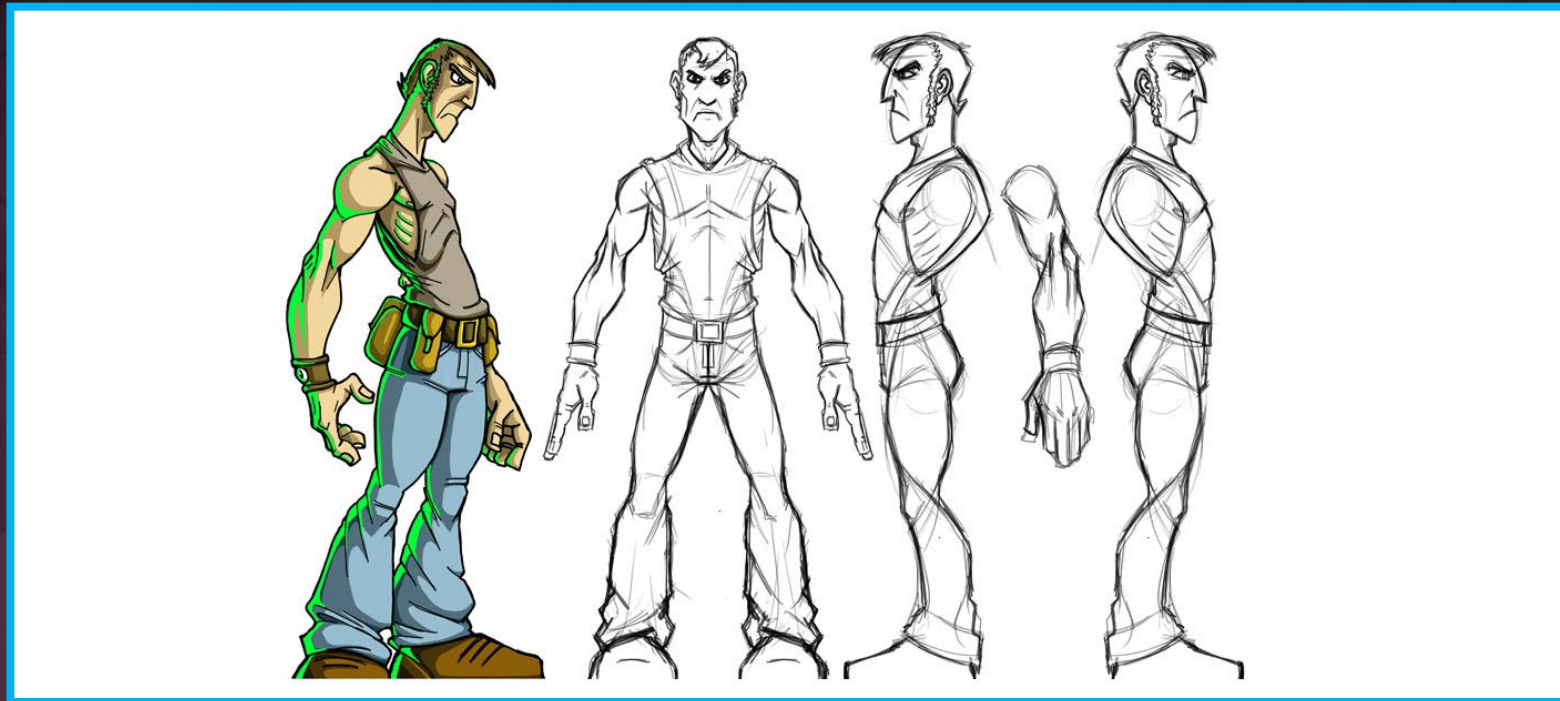
The development team **will not tolerate searching through enormous, densely worded works** containing irrelevant or arbitrary information such as:

- **General design direction**
- **Personal thoughts on design extending into paragraphs or pages**
- **Endless comparisons to every other game on the market**
- **Massive and intimate backstory detailing**



You need to give your development team design information **quickly** and **effectively**.

- Artists and Animators need to know how characters should be constructed, textured and how they are supposed to move.

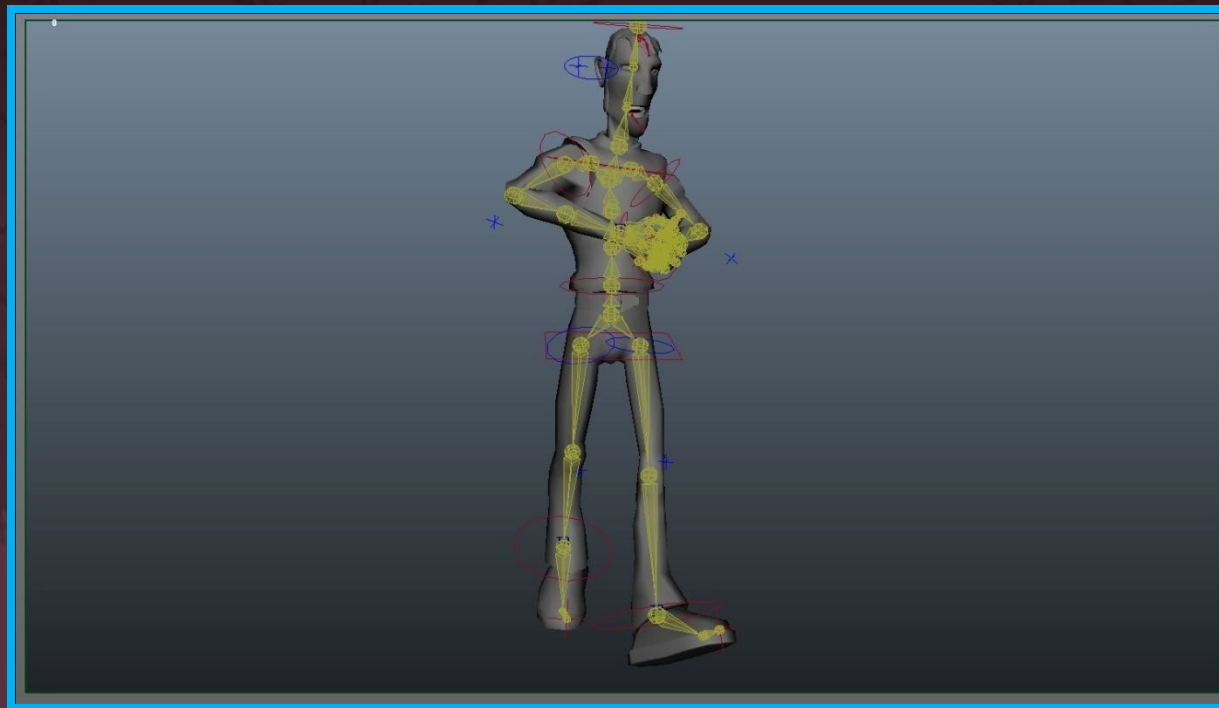


(Meigs, 2003, p.317)



You need to give your development team design information **quickly** and **effectively**.

- **AI Programmers need to know how characters are expected to behave.**





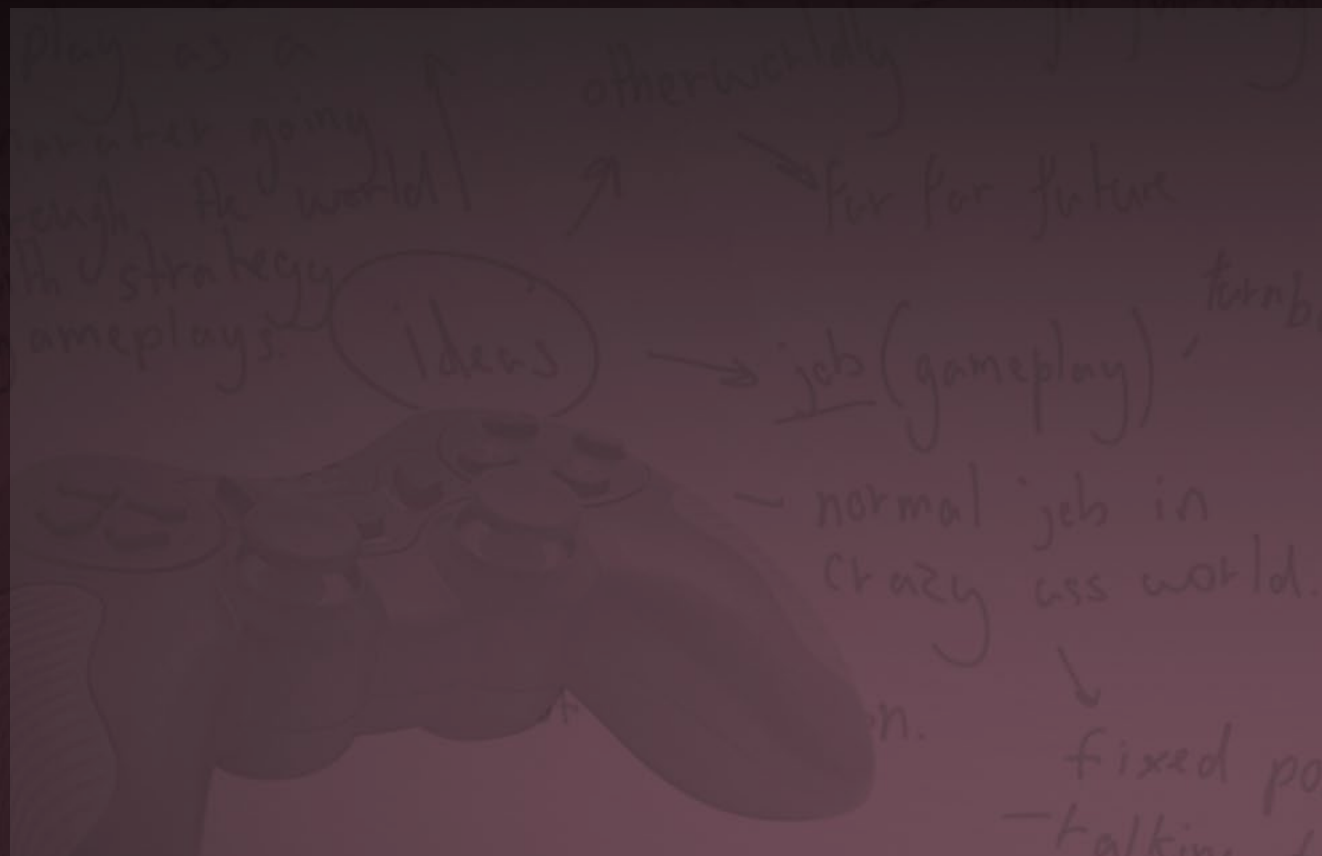
You need to give your development team design information **quickly** and **effectively**.

- In-game items, and their feature specifics, need to be understood by almost everyone.





You need to give your development team design information **quickly** and **effectively**.



Much Haste to Igford! IN-GAME 3D ASSET LIST (Version 0.2)

Buildings (Town of Igford)

- Small church/chapel
(<http://www.churches-uk-ireland.org/images/swansea/swansea/bethlehem.jpg>)
- Large Church with Spire
- Large Victorian-style school
- Cylindrical redbrick chimney
- Redbrick Warehouses (2-3 variants)
- Upper-class terraced houses
- Georgian-style shops (2-3 variants)
- Georgian town houses (snap-to-grid tileable, **modular**)
- Tudor-style timber buildings with thatched roof – old Igford centre

In-game Asset	Variants	Snap To Grid	Tileable	Modular
Small Church/Chapel		Yes		
Large Church with Spire		Yes		Yes
Large Victorian-style school		Yes		Yes
Cylindrical redbrick chimney	2	Yes		
Redbrick warehouses	2 – 3	Yes	Yes	Yes
Upper-class terraced houses		Yes	Yes	Yes
Georgian-style shops	2 – 3	Yes	Yes	Yes
Georgian town houses		Yes	Yes	Yes
Tudor style buildings with thatched roof		Yes		Yes



You need to give your development team design information **quickly** and **effectively**.

- Use tables
- Use summaries
- Use simple bullet points and lists
- Don't make people dig!



Much Haste to Igford! IN-GAME 3D ASSET LIST (Version 0.2)

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If you bury this information deep inside a huge, wordy document, it will be lost on your team.



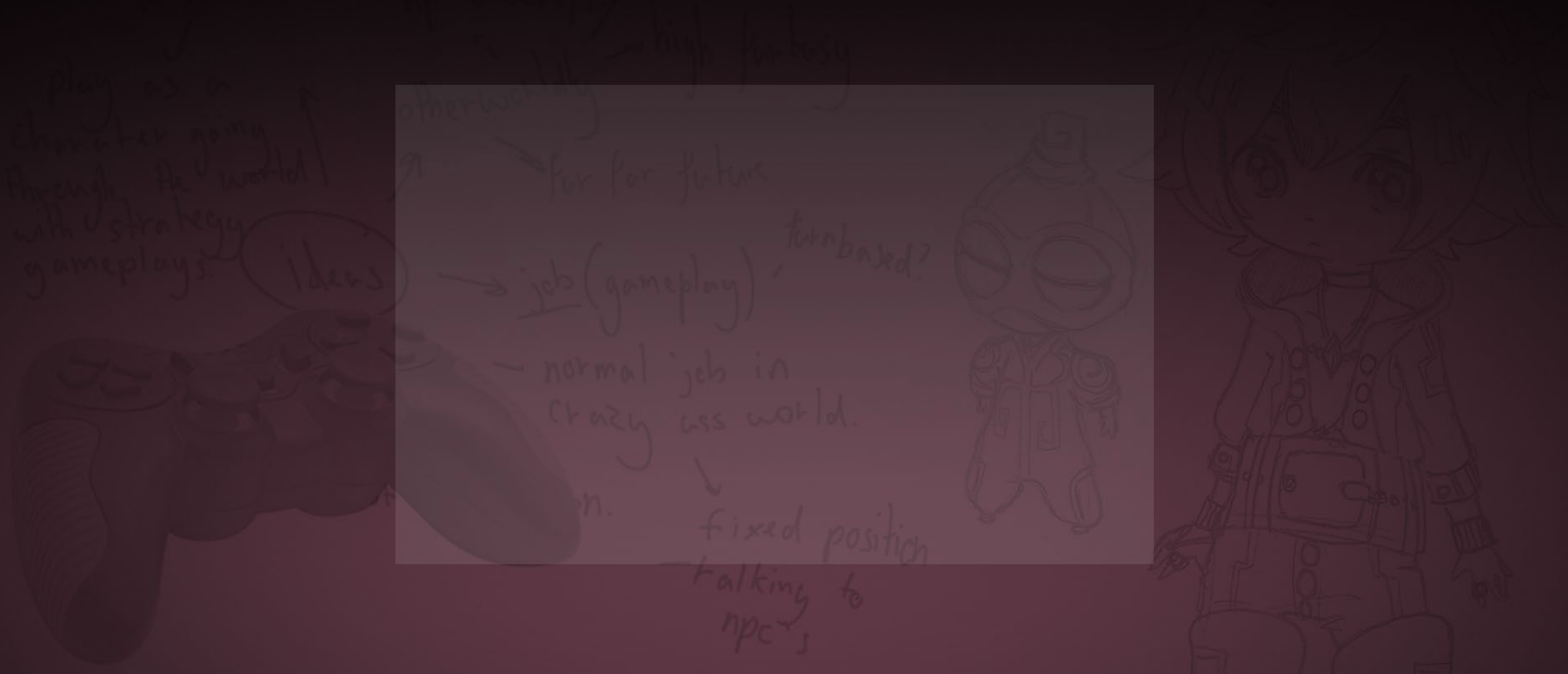
Jesse Schell: *The Art of Game Design: A Book of Lenses* (2008)

Documents are different for every game, and different for every team.

To understand the correct structure of the documents for your game, you must first understand their purpose.



According to Schell, GDDs have two purposes:





According to Schell, GDDs have two purposes:

MEMORY

and

COMMUNICATION



GDD purpose one: **MEMORY**

A game will be full of thousands of important decisions that define how the game works and why.

There is a good chance you will not be able to remember them all.

If you **get in the habit of recording your design decisions**, it will save you the trouble of having to solve the same problems all over again.

(Schell, 2008, p.382)



GDD purpose two: COMMUNICATION

Decisions about the design of your game must be communicated to many other people on the team. GDDs are a very effective way to do this.

(Schell, 2008, p.382)



GDD purpose two: **COMMUNICATION**

Decisions about the design of your game must be communicated to many other people on the team. GDDs are a very effective way to do this.

Bear in mind that this communication will not be one-way.

(Schell, 2008, p.382)



GDD purpose two: **COMMUNICATION**

After decisions are put on paper, another member of the team may find a problem with it or come up with a way to make it better.

Using GDDs in this way can quickly help identify flaws and weaknesses in the game design.

(Schell, 2008, p.382)



Alan Thorn: *Game Development Principles* (2014)

Important points to bear in mind:

The GDD does **NOT** state in practical terms how the project is to be created.

(Thorn, 2014, p.32)



Alan Thorn: *Game Development Principles* (2014)

Important points to bear in mind:

It does not cover in meticulous detail the steps of the following tasks (and others like them):

- Coding
- Asset creation
- Game testing

(Thorn, 2014, p.32)



Alan Thorn: *Game Development Principles* (2014)

The central aim of the GDD is to articulate the creative vision of the game in a **clear, concise, comprehensive and technologically independent way** to a readership of game developers – usually the other developers on the team.

It is typically started in the earliest phases of development and is completed or finalized after the prototyping phase.

(Thorn, 2014, p.32)



Alan Thorn: *Game Development Principles* (2014)

Bear in mind that the content of the GDD is targeted at **developers**, not gamers!

The aim of the GDD is **not** to convince gamers of the game's worthiness of their time and attention.

It should **not** read like a game review or be self-consciously evaluative of its own features compared to those of the competition.

(Thorn, 2014, p.32)



Game Design Documents

Discussion / Exercise



Consider what Tom Meigs, Scott Rogers, Ernest Adams and Andrew Rollings have said about accessibility of documents.

What ways would you consider making a GDD so it is easily accessible to the dev team?

How would you implement this?



Game Design Documents

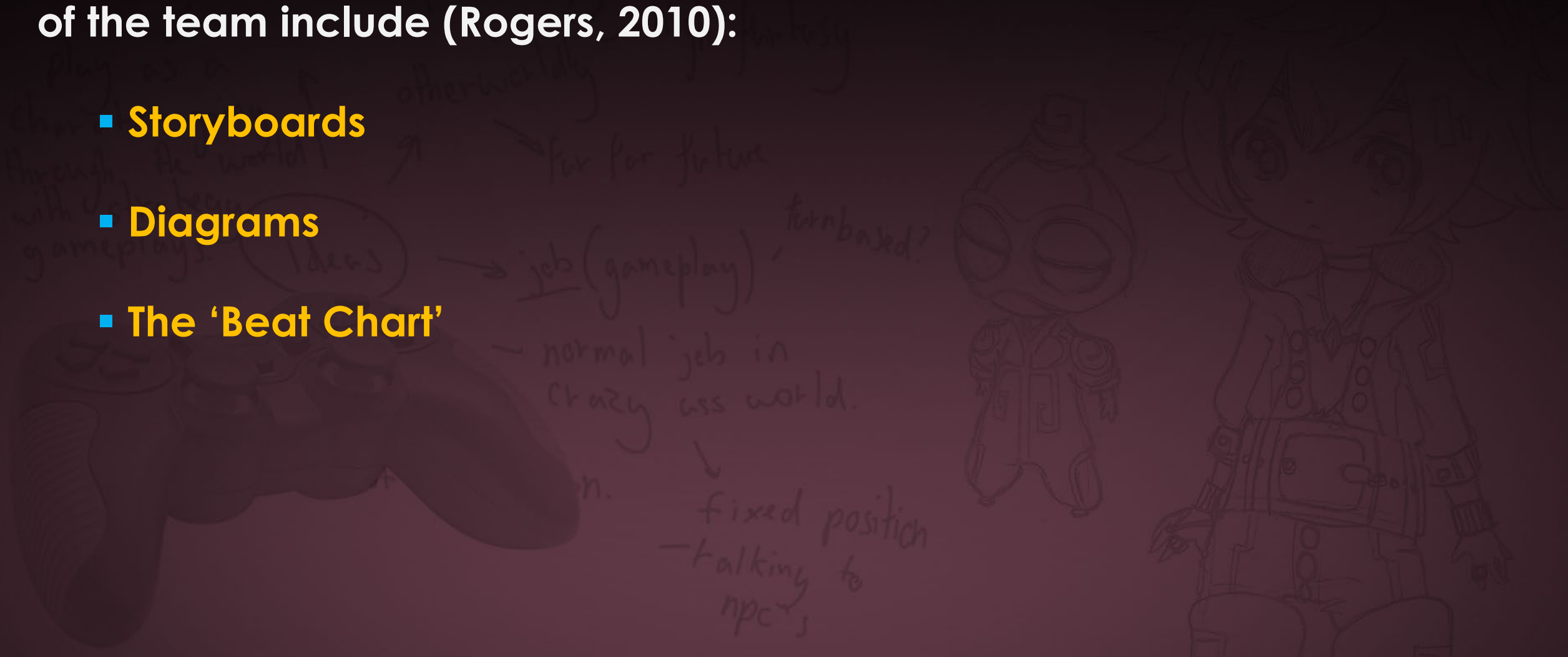
GDD Techniques





Techniques suggested by Rogers to communicate your ideas to the rest of the team include (Rogers, 2010):

- Storyboards
- Diagrams
- The 'Beat Chart'



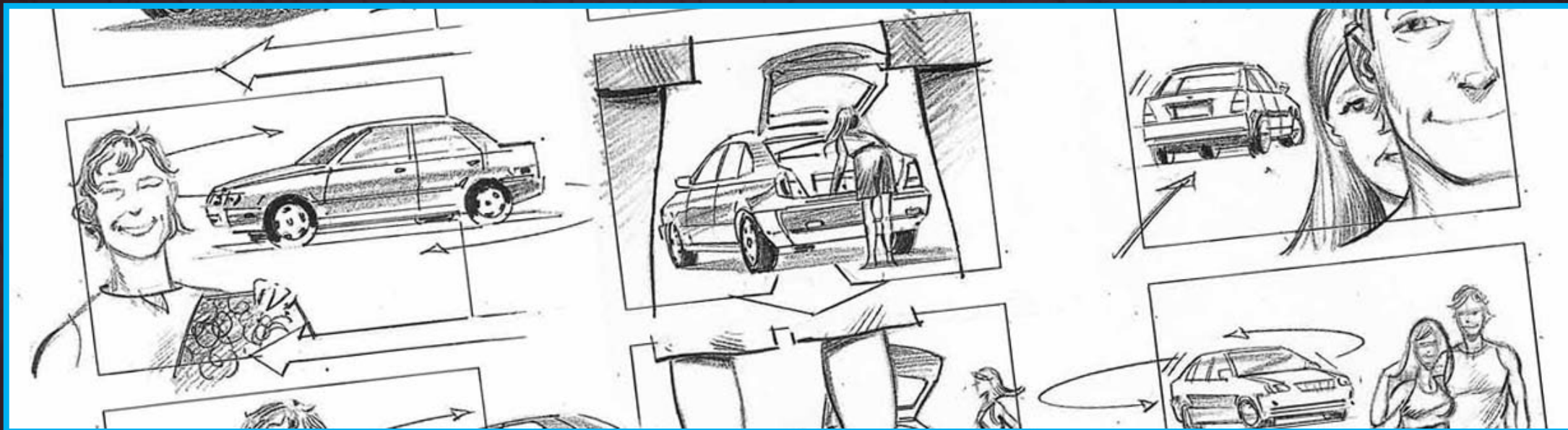


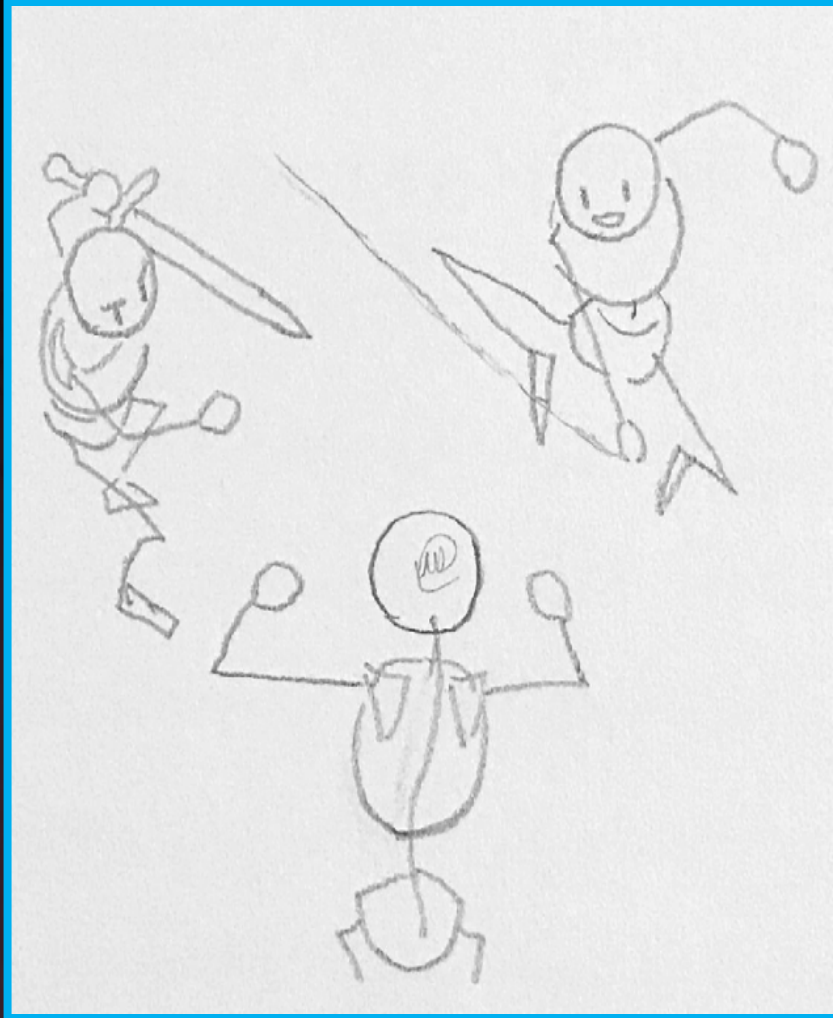
■ Storyboards

Games can be storyboarded, just like movies.

If you are having trouble coming up with ideas, use published comic books, movie storyboards or other sequential art sources for inspiration.

(Rogers, 2010, p74)





■ Diagrams

Even stick figures can convey information, but if you are concerned about your art skills you can diagram out your gameplay examples.

Use consistent shapes and colours to represent elements of your game.

Make sure you **include a key / legend** to enable readers to tell what each icon or shape means.

(Rogers, 2010, p74)



■ The 'Beat Chart'

A **Beat Chart** is a document that covers the entire span of the game.

This chart allows readers to **see and understand a lot of information on a single page**. It also allows direct comparisons to be made regarding the flow and structure of the game.

(Rogers, 2010, p74)

GDD Techniques

Level: World 1-1
Name: Grave Danger (Boneyard)
TOD: Night
Story: Maximo enters the graveyard, fighting his way through undead creatures that bar his way
Progression: Player taught basic movement, combat and defensive moves. Player learns how to collect and map abilities
Est. play time: 15 min
Color map: Green (trees), brown (trees/rock), purples (tombstones)
Enemies: Skeleton (basic), sword skeleton (red), skeleton (axe), ghost, zombie (basic), wooden coffin, chest mimic
Mechanics: Holy ground, breakable tombstone, breakable torch, breakable crypt lid, breakable rocks, Achilles key statue, key lock, opening gate (door), opening gate (cave), prize wheel, treasure chest, locked chest, hidden chest, end plinth
Hazards: Unholy ground, skull



Game Design Documents

Scott Rogers: The Beat Chart



Scott Rogers: The Beat Chart

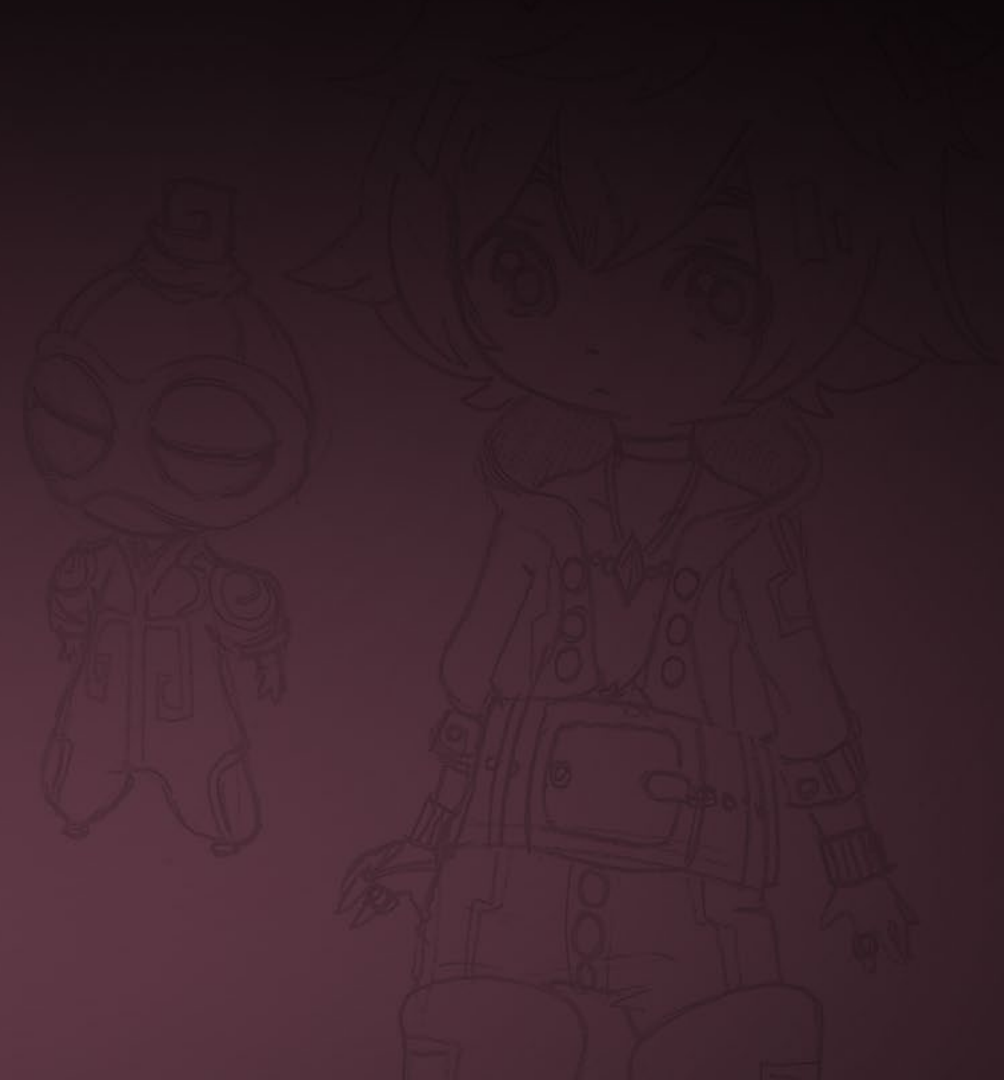
The **Beat Chart** defined by Rogers (2010) is a useful tool that can help develop the content of a GDD while providing a 'map' of the structure of your game.

Every Beat Chart requires the following elements:



Scott Rogers: The Beat Chart

- **Level/environment name**
 - **File name (level/environment designation)**
 - **Time of day (in context of the game)**
 - **Story elements for level**
 - **Progression: Gameplay focus of the level**
 - **Estimated play time of level**
 - **Colour scheme of level/environment**
- Handwritten notes in the background:*
- high fantasy
 - afterworldly
 - for for future
 - gameplays
 - ideas
 - job (gameplay)
 - turn based?
 - normal job in crazy ass world.
 - fixed position
 - talking to npc's





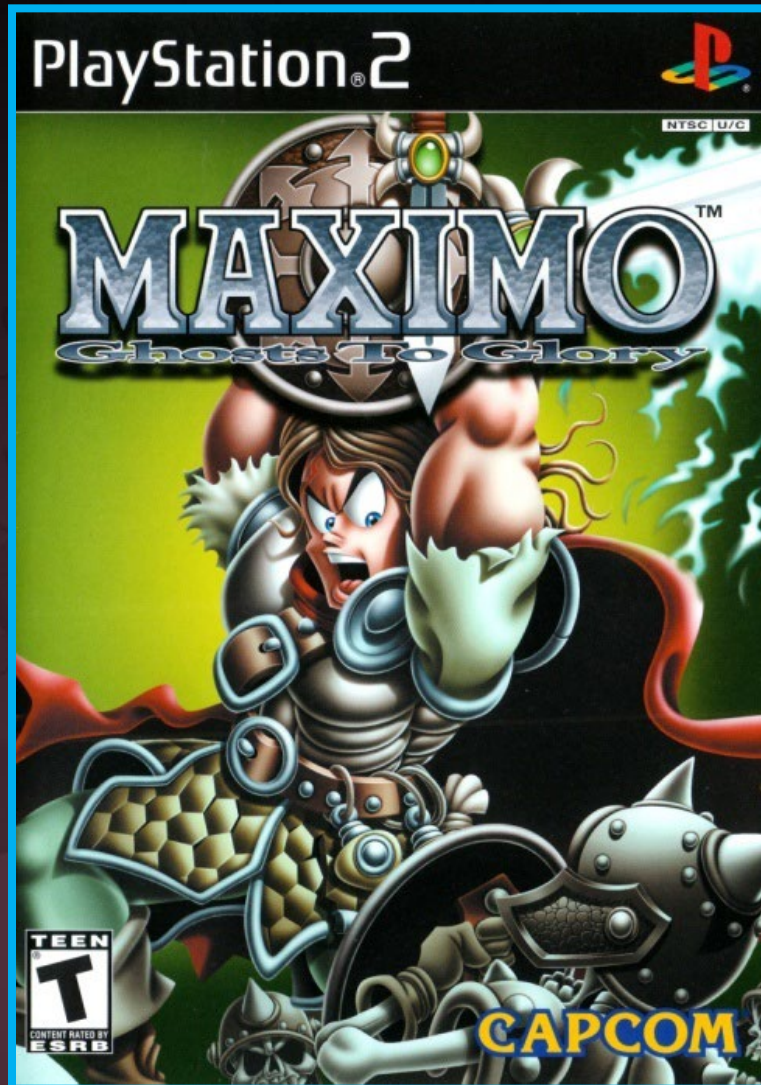
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- **Colour scheme of level/environment**

Scott Rogers: The Beat Chart

- **Enemies/bosses introduced and used**
- **Hazards introduced and used**
- **Power-ups found in level/environment**
- **New abilities, weapons, or gear introduced/unlocked**
- **Treasure amount and type the player can find**
- **Bonus material found in level/environment**
- **Music track(s) to be used in this level/environment**



Example: *Maximo: Ghosts to Glory*



Scott Rogers: The Beat Chart

Maximo: Ghosts to Glory Beat Chart Example

Scott Rogers (2010) *Level Up! The Guide to Great Video Game Design*
John Wiley & Sons Ltd. USA.

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Enemies: Skeleton (basic), sword skeleton (red), skeleton (axe), ghost, zombie (basic), wooden coffin, chest mimic

Mechanics: Holy ground, breakable tombstone, breakable torch, breakable crypt lid, breakable rocks, Achille key statue, key lock, opening gate (door), opening gate (cave), prize wheel, treasure chest, locked chest, hidden chest, end plinth

Hazards: Unholy ground, Achille statue, fall-away ground, skull tower, breakaway bridge, deep water, lava pit

Power-ups: Koin, koin bag, diamond, death koin, spirit, life up, flametongue, shield recharge, sword recharge, half health, full health, iron key, gold key, armor up

Abilities: Second strike, mighty blow, magic bolt, doomstrike, foot cheese

Economy: 200 koins, 2 death koins

Bonus materials: N/A

Music track: Graveyard 1

Level: World 1-2

Name: Dead Heat (Boneyard)

TOD: Night

Story: Achille's drill has cracked open the earth, causing lava pits to open up throughout the graveyard

Progression: Player masters hazardous jumps and more intense combat

Est. play time: 15min

Color map: Red (lava), brown (trees/rock), purples (tombstones)

Enemies: Skeleton (basic), skeleton (axe), sword skeleton (red), sword skeleton (blue), skeleton (guardian), zombie (basic), raven, ghost

Mechanics: Holy ground, breakable tombstone, breakable torch, breakable crypt lid, key statue, key lock, opening gate (door), enemy coffin, floating platform, prize wheel, treasure chest, locked chest, hidden chest, end plinth

Hazards: Unholy ground, swinging gate, skull tower, flame jet, lava pit

Power-ups: Koin, koin bag, diamond, death koin, spirit, life up, flametongue, shield recharge, sword recharge, half health, full health, gold key, armor up

Abilities: Second strike, mighty blow, magic bolt, doomstrike, throw shield

Economy: 200 koins, 1 death koin

Bonus materials: N/A

Music track: Graveyard 2



Scott Rogers: The Beat Chart

When two or more columns of a beat chart are compared, certain patterns start to emerge, such as:

- Introduction of new enemies
- Introduction of new mechanics
- Introduction of new items
- Introduction of new abilities



Scott Rogers: The Beat Chart

When two or more columns of a beat chart are compared, certain patterns start to emerge, such as:

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You can then identify deficiencies in the design and move elements around.

(Rogers, 2010, p.78)



Scott Rogers: The Beat Chart

Here are a few things to look out for:

- “Clumping”: Too many new enemies or mechanics being introduced at once. Spread these out over the course of the game.
- Too many identical combinations of enemies and mechanics. Mix things up to keep interaction fresh.
- Alternate the time of day and colour schemes to avoid the game feeling and looking repetitive.



Scott Rogers: The Beat Chart

Here are a few things to look out for:

- Alternate your music tracks to avoid player boredom.
- Game economy: Make sure players have **enough money** to buy items to use in the world, but make sure they don't have too much money so that it all becomes worthless.
- Mechanics and enemies should be introduced in conjunction with the items and abilities required to defeat them.

(Rogers, 2010, pp.78-79)



Scott Rogers: The Beat Chart

Here are a few things to look out for:

- When will the player have access to everything? Make sure they have time to play with it all. Rogers states that by **giving the player everything around 75%** through the game they will have time to use all of their items.
- Pacing: Try to introduce **two or three new mechanics**, enemies and rewards per level.



Game Design Documents

Beat Chart Exercise

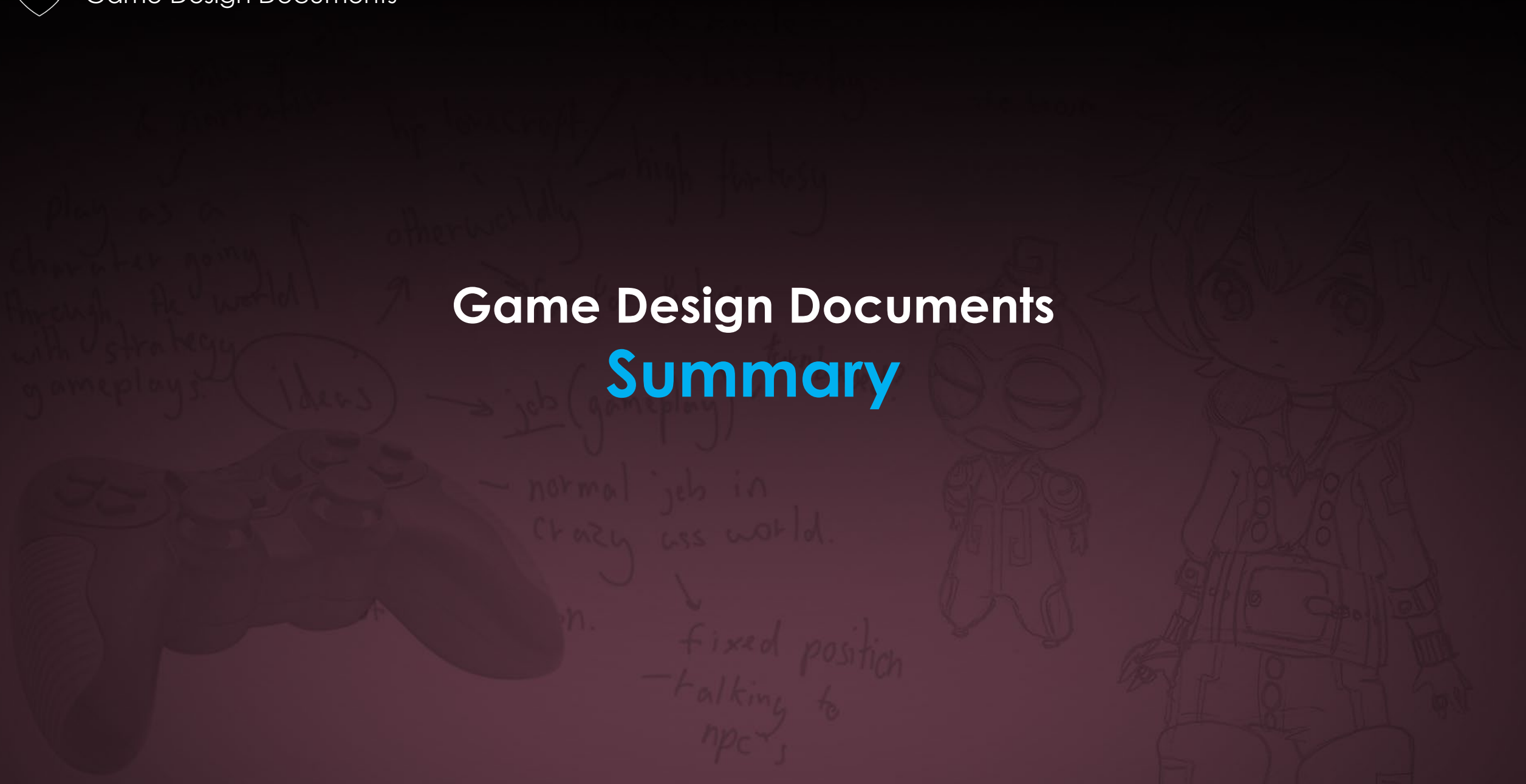


- Work **in pairs** for this exercise.
- Using the Longplay Videos and Beat Chart templates supplied, record relevant information of the first **three levels/stages** of one of the games.

Analyse the information once you have completed this – do you see any patterns in the data?

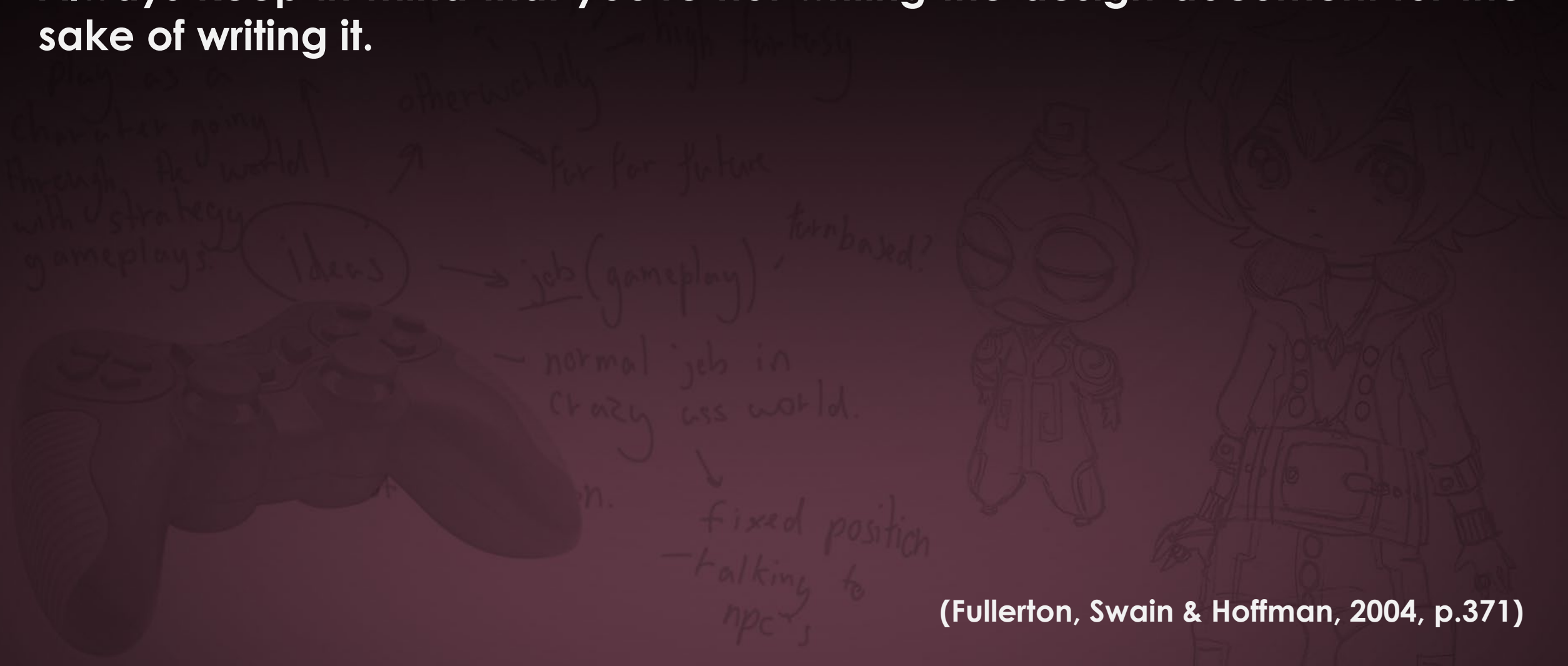


Game Design Documents Summary





Always keep in mind that you're not writing the design document for the sake of writing it.



(Fullerton, Swain & Hoffman, 2004, p.371)



Always keep in mind that you're not writing the design document for the sake of writing it.

Your objective is communication.

(Fullerton, Swain & Hoffman, 2004, p.371)



Always keep in mind that you're not writing the design document for the sake of writing it.

Your objective is communication.

Do whatever it takes to accomplish that goal.



Documents are also **not** a substitute for talking to your team.

Just because you've written it down, **don't assume** that everyone has read and understood your vision.

Your objective is communication.

Do whatever it takes to accomplish that goal.



Game Design Documents

Any questions?





Game Design Documents Bibliography



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